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J. F. DASHIELL, PH. D., CONSULTING EDITOR

*Sex and the
Social Order*

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J. F. DASHIELL

CONSULTING EDITOR

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-

Sex and the Social Order

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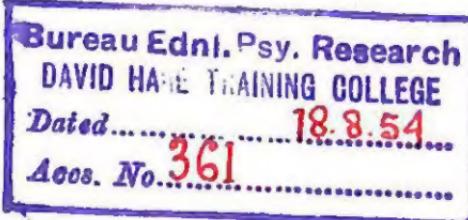
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SEX AND THE SOCIAL ORDER

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To the
MEN AND WOMEN
of the
POSTWAR WORLD

Preface



During the past generation extraordinary interest has centered around relations between the sexes. Students have tackled the problem from a great many angles, which has resulted in a bewildering array of fact and fancy. Even if we confine ourselves to *facts*—facts gathered by the strict application of scientific method—we shall still be faced with a vast, unorganized literature. The biologist, experimenting with animals in laboratory and field, is primarily concerned with problems of internal mechanics. The social scientist, on the contrary, sees sex so largely as a cultural product that he often seems to neglect the physiological basis. The psychologist, whose task it is to explain the behavior of individuals throughout the evolutionary scale, must hold the balance between biological and social scientist. Working in this longitudinal dimension, he is impressed by the trend toward increasing control of individual by group with a corresponding decline in the relative influence of internal directives.

At the human level, sex takes on a variety of meanings. Different values are given reproductive activities in different groups, and the social roles assigned men and women depend on the structure of the culture as a whole.

The present volume represents a phylogenetic approach to problems of sex in the life of the group.

Since material that does not measure up to the criteria of scientific method has been for the most part excluded, the reader will look in vain for many familiar landmarks. In treating the

sexual behavior of lower animals the author has confined herself to carefully controlled observations and for this reason has had to leave out much interesting natural history. Owing to the paucity of scientific material, she has had to be content with rodents to represent lower mammals and primates to represent those higher on the scale. At the human level psychoanalytic and other theories are discussed only insofar as they have led directly to scientific studies of sexual behavior. Practical information concerning erotic techniques is also omitted except where it has been the subject of scientific investigation. By the same token, the more medical aspects of sexual pathology and crime have been excluded, although certain clinical case histories have been brought in from time to time to throw light on the relative importance of physiological and social influences.

The scientific facts concerning sex in the social order having been presented, there remains the question of their implication for human happiness. We are in the process of building a new world, and we cannot escape the challenge of showing how factors related to sex may be mobilized in that reconstruction. In the light of the literature on sex differences, there has been suggested a reformulation of sex roles which should improve the relationship between men and women and their social usefulness as individuals. It is hoped that this may be a minor contribution to the tremendous task of postwar planning.

It gives the author the greatest pleasure to put on record her appreciation to those who have generously helped in the preparation of this book. Special thanks go to the indefatigable patience of her husband, John Perry Seward, who gave his time and skill unsparingly in criticizing the manuscript at all stages of its development. Warm appreciation is also extended to Dr. Robert L. Dickinson, who not only gave the benefit of his great medical wisdom, but also allowed access to special literature in the New York Academy of

Medicine not usually accessible to laymen. The author is also deeply indebted to Gardner Murphy, A. H. Maslow, Ruth Benedict, and Ralph Linton for their many valuable suggestions. A. H. Maslow and L. M. Hanks, Jr., were also kind enough to permit use of some of their important unpublished data on the northern Blackfoot. The author is greatly obliged to Frank Beach for making available books and illustrative material that would have been otherwise inaccessible.

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GEORGENE H. SEWARD.

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SEX AND THE SOCIAL ORDER

CHAPTER I ORIENTATION

SOCIETY'S PROBLEM

Cultural Demands.—The biological necessity of preserving the species assures sex a position of prestige at all times and in all places. Sex, broadly conceived, includes the social role of male and female in the life of the group as well as mating behavior. As we ascend the vertebrate scale, society assumes increasing control over individual conduct until at the human level we can understand sex only against the setting of the culture as a whole.

Culture is important in the regulation of all phases of individual life. The sexual relationship is no exception and is institutionalized in all groups. Whether we have in mind group marriages among the Eskimos, Oriental polygyny, or the monogamy of the West, some form of pressure is exerted upon the developing individual to fit him into the accepted mode. In our society, along with learning not to eat with his fingers, he must learn not to handle his genitals, or if he comes from Buka, he finds that he is forbidden to speak to his sister in private just as he is forbidden to eat in the presence of his sister-in-law (93).^{*} Societies differ not only with respect to the nature of the restrictions but also in

* Numbers in parentheses refer to the Bibliography at the end of the text.

the strictness with which they are enforced. They are often imposed without regard to their possibly harmful effects upon the individual. In the case of the more basic life-preservative needs, e.g., hunger, social regulation is necessarily more superficial and is concerned only with such external circumstances as time and manner of eating and the particular foodstuffs available. Society cannot, however, penetrate more deeply. Edible substances must be provided at frequent intervals in sufficient abundance to sustain life. There are limits to ersatz. There can be no sublimation of hunger.

The situation in the case of sex is obviously different. Society can take greater liberties here because individual survival is not at stake. Satisfaction of this need may be delayed, distorted, or entirely abrogated. The burden of cultural restraint may exceed the individual's frustration tolerance. Under these circumstances there may be direct aggression against society in the form of crime (670). Even if the mores are not openly rejected, serious conflict may ensue. The accompanying feelings of guilt and anxiety are likely to undermine the individual's security and lead to psychoneurosis. Such maladjustment constitutes a secondary problem for society to solve. Hence more vigorous attempts are made to force the individual into the acceptable pattern and so on in an infinite regression.

As we have pointed out, not all societies exert equal degrees of pressure upon their members in any sphere of activity. In a general sense it is possible to evaluate different cultures in terms of their wholesomeness. Abnormality means deviation from a norm and, consequently, will vary for every group according to the existing standards of conduct. If murder is the socially acceptable reaction to misfortune, it cannot be considered abnormal. Examples might be multiplied but we need not labor the point to convince ourselves of the relativity of the abnormal. In evaluating cultural health, however, we may also apply an absolute criterion based on the incidence of conflict within the indi-

vidual members of the group. The norms and the specific content of the difficulties necessarily vary. In one group the afflicted may think he is a cannibalistic ice giant while in another he may impersonate the Savior; in one era he may have visions of divine revelation while in another he may receive secret signals over a radio network. The form will follow current ideologies, but the significant fact of maladjustment will remain constant. In estimating a culture's mental health it is necessary to compare it with other societies with respect to the number of individuals who have been unable to manage the conflicts induced. In other words, we must set up a supercultural norm against which to judge each one. There is no doubt that some societies are much easier to live in than others. The relatively flexible Samoan ways contrast sharply with the rigid mores of the Chuckchees.

Cultural Dynamics.—Although we have outgrown the concept of absolutes in human nature and fully recognize the individual's dependence upon the culture medium in which he grows, we must admit physiological limits to society's molding power. There is a matrix with which culture must work. The result is limited by the nature of the raw material as well as by the external forces applied. There is a tendency to underemphasize the role of the individual in the effort to show the impact of the cultural pattern. A sounder attitude would pay due respect to those individual needs which would unfold in any cultural context, at the same time seeking the important ways in which society modifies the natural tendencies and integrates them in the more inclusive pattern. This conception recognizes an *interaction* between individual and group because not only does the group affect its constituent members, but the members through their needs claim reciprocal action from the group. The individual does not remain passive and, like the chameleon, assume the color of the background, but he is dynamic, *sui generis*, and in turn modifies the group in which he lives. This amounts to saying that society should not content itself with attempts to adjust the

individual but that the individual should fit his society to meet his needs.

PAST AND PRESENT APPROACHES TO THE PROBLEM

Instinct Doctrine.—Under the influence of the Church it was long customary to make a sharp distinction between man and lower animals. This tendency reached its culmination and clearest expression in the philosophy of Descartes. According to him, animals were automata, impelled by blind instincts, while man was guided by an immortal soul, which, transcending his mortal body, gave a rational character to his passions. Darwin sounded the death knell of Cartesian dichotomy. The new emphasis was on continuity between man and animals. Man was not different in kind from forms lower on the phylogenetic scale, but solely in complexity. This was true not only for structural mechanisms but also for their behavioral correlates. Thus, subhuman instinctive strivings found their counterparts at the human level. It was for William McDougall to interpret this view-point to psychologists. He regarded instincts as the mainsprings of human conduct, and their understanding as prerequisite to an understanding of human social relations. In his famous book, *An Introduction to Social Psychology* (386), he set forth his instinct doctrine. Although the drive to mate was classified as a secondary rather than a primary instinct, it was no longer relegated to the limbo of some lower nature but, in company with the parental, acquisitive, and constructive instincts, it became part of man's altogether respectable equipment for social living.

The instinct doctrine enjoyed an unprecedented vogue in psychology and sociology for over a decade. During this time instincts in general and the sex instinct in particular were used as convenient *dei ex machina* explanations for most complex and baffling social phenomena. The term came to be used so loosely that it meant all things to all men and resulted in the famous

doctors' disagreement known as the "instinct controversy." The attack leveled at the concept of instinct and the exposure of the ambiguities, inconsistencies, and logical fallacies involved, led to a radical movement away from the biological, hereditarian viewpoint, in the direction of the environment. An appeal was made to the objectively recognizable and controllable factors in the external world in preference to the elusive forces from within. The focus shifted from nature to nurture.

Behaviorism.—Under the aegis of behaviorism, Watson (645, 646) and his followers advocated a kind of Neo-Jesuitism according to which training, especially during the formative first seven years, became all-important and a psychology without heredity (344) its logical *reductio ad absurdum*. The conditioned response recently introduced from Pavlov's physiological laboratory provided the needed tool for an objective attack on problems of modification. As applied to the specific problems of sex, conditioning has been regarded by many as of greater significance than nature (305, 689).

Although behaviorism served scientific progress by carrying analysis beyond the categorical thinking of the instinct period, it had its own limitations. In their enthusiasm for the environment, behaviorists neglected the organism. The concentration of attention on the objectively observable units, presumably aroused by specific external stimuli, resulted in a failure to keep in focus the integrity of the organism as a whole. Between the stimulus elements on the one hand and the behavioral elements on the other the individual was lost sight of.

Psychoanalysis.—Meanwhile medical science was coping with problems of sexual deviations and pointed out their importance for normal living. Krafft-Ebing's exhaustive compendium, *Psychopathia Sexualis* (343), was representative of this trend. One of the great pioneers of the early period was Havelock Ellis, whose classical *Studies in the Psychology of Sex* (188) attacked the problem from all angles, not neglecting its relation

to society. In the general preface to the series he wrote in 1897, "I regard sex as the central problem of life" (188, p. XXX). He proved his sincerity by devoting his life to compiling material describing sexual phenomena and by publishing it in the face of the Victorian decency wave at the risk of imprisonment.

Simultaneously on the continent there emerged another pioneer in this forbidden territory who was to exert the greatest influence upon the future of both normal and abnormal psychology. Sigmund Freud, while a student of Charcot in Paris, was impressed by the great master's firm conviction that neurosis could always be traced to some difficulty in the patient's sex life if one looked deeply enough. It was with this idea fermenting in his mind that Freud returned home to Vienna to put into practice what he had learned and to develop theories that have revolutionized psychopathology. Following the lead of his colleague, Breuer, he supplemented the traditional hypnotic treatment with a new "talking-out" cure which gradually became elaborated into psychoanalysis (217). The search for the root of the patient's difficulty led far into his past experiences, even going back to early infancy. Very frequently it involved some phase of sexual development. Freud charted the normal growth of sexual tendencies as a sequence of predictable stages. Early infancy was a nonpersonalized, nonsocialized period when the individual could be regarded only as an "id" and his protosexual impulses were necessarily very general. They were still unlocalized and without an object. Since they were associated with certain sensitive areas of the skin and mucous membranes of the individual's own body, they were called "autoerotic." This stage was followed by the emergence of the "ego," representing awareness of the self in relation to the surrounding world. An object was provided toward which the developing sexual urge or "libido" might be directed, and a period of narcissism or self-love prevailed. During this phase the individual learned that the unbridled impulses of his instinctive nature were not acceptable to the group. The prudent and opportunistic ego found it expedient to relinquish

immediate satisfaction in order to ensure greater satisfaction in the future and to avoid social punishment (218).

The next important step in psychosexual development was characterized by emotional attachment to the mother. In boys an ambivalent attitude was developed toward the father, who was hated as a powerful rival for the mother's affection and, at the same time, respected as the representative of authority. Mythological expression for this phase was found in the story of *Oedipus Rex*. A little later when the group mores had become internalized the punishment was transferred from the father to an internal censor, the "superego." Unacceptable impulses, including the incestuous Oedipus complex, were repressed with a strong sense of guilt. According to Freud these infantile forms of sexuality were followed by a latency period, which continued until early adolescence. A renaissance of narcissism then preceded a short homosexual phase which in turn gave way to the heterosexuality of adulthood (216). It frequently happened, however, that the individual was unable to meet the exacting demands of society and consequently failed to progress smoothly to maturity. He might remain fixated at any level, he might regress to earlier levels in the face of adult conflict, or he might make some other inadequate adjustment. Such failures provided the psychoanalyst with his case material.

Although psychoanalytic concepts today are much broader in scope than Freud's original libido theory, he deserves a full measure of credit for the challenging hypotheses that have initiated the scientific investigation of personality dynamics, and for the brilliant insights that have guided clinical practice and revealed the social necessity for adjustment between individual need and cultural demand.

CURRENT TRENDS

The early attempts to explain sexual behavior have been outgrown by a rapidly maturing science, but they have each made an imperishable contribution and prepared the ground for newer

developments. With respect to the problem of sex in society we find three current approaches. They reveal their heredity but at the same time show the effects of environmental change.

Biological.—The biological trend may be regarded as a modern ramification of the instinct controversy. In the first place, the effort to get away from the loose thinking of the instinct generation has led to a more careful analysis of concepts. Definitions are no longer stated in vague categorical terms but must be translated into objective operations which may be readily observed and measured. An extension of the experimental method to problems of motivation has resulted. Special impetus has been given to the investigation of endocrine factors in reproductive behavior. A second outcome of the instinct controversy may be found in the numerous studies on the effect of external stimuli operating within a standard environment. Experiments of this kind exemplify the biological approach since they deal for the most part with animals and have important bearings on evolutionary theory. In the ensuing discussion we shall survey this interesting material and try to determine what light it throws on problems of sex in society.

Cultural.—The behaviorists in the first flush of their enthusiasm for analysis saw in the environment only a congeries of specific isolated stimuli. The oversimplicity of this conception has given way to Lewin's field theory (364, 365), which substitutes for stimulus and response an integrated and meaningful field consisting of a social situation bearing a dynamic relationship to its individual members. This notion has been applied by Brown (109, 110) and others to problems of social and abnormal psychology. In contrast to the Freudian depth psychology as well as McDougall's instinct doctrine, the field theorists play down heredity and the past and focus their attention on the immediately present field.

A movement paralleling the field theory is represented by the recent anthropological studies showing the impact of the culture

pattern on individual members. The writings of Malinowski (391, 392, 393), Benedict (80), and Mead (405, 409) were in the van in demonstrating the great potentiality for change inherent in even such supposedly stable compounds as instincts. The constants of human nature appeared to be not absolute after all but dependent upon the situation in which they occur. It is possible to find striking cultural contrasts in the development of sexual behavior, in marital and maternal patterns, and in the respective roles of men and women. Although this concept of behavioral relativity has been the best possible antidote to the stagnation of the instinct ideology, there is a danger that the cure may be worse than the disease. By repeated references to the varying customs of different peoples we may reiterate the importance of nurture until we have hypnotized ourselves into a denial of nature. Such a conclusion would conveniently relieve us of the responsibility for experimental analysis and we should find ourselves back in the armchair instead of in the laboratory. Description would again have been substituted for explanation, only now the verbal magic of instinct would have succumbed to the verbal magic of cultural pattern.

Clinical.—Freud bequeathed to contemporary psychology a clinical approach which seems to have generated sufficient heat to weld together the biological and cultural trends. When an urgent biological need meets an unyielding cultural obstruction, the clinician is called in to pick up the pieces. He must be familiar with both aspects of the situation in order to effect an adjustment between them. Freud performed a priceless service in opening our eyes to many unsuspected sources of conflict and in removing social taboos from the scientific investigation of sexual difficulties. Although the original Freudian concepts are limited to bourgeois European culture, they have been more broadly interpreted by such recent exponents of analysis as Horney (298), and their adaptation to different groups has been attempted by a number of anthropologists including Malinowski

(392), Kardiner (319), and Fromm (223). In the following pages our aim will be an evaluation of the biological and social factors in the causation of sex problems as well as an evaluation of therapeutic method.

PSYCHOLOGY'S TASK

The problems of sex in the social order have been treated by various experts, who have considered them from the viewpoints of their specialities. As we have already suggested, our task will be to bring these diverse approaches into relationship with one another in the hope of providing a more unified understanding of sexual behavior than is possible with any one alone. The psychologist is in a peculiarly favorable position to do this. He stands as intermediary between the biologist, whose chief concern is with the functioning of the separate organs of the body, and the anthropologist, whose unit is the cultural group. The psychologist's task is to explain the behavior of the individual as a whole, composed of various organ systems and affected by various cultural influences. It is the psychologist who must evaluate the biological urges welling up from within and the social forces operating from without. Moreover, the individual studied is "whole" not only in a structural sense but also in the sense of normal functioning. Therefore it behooves the psychologist to see normal functions caricatured in pathology so that he may better comprehend their underlying dynamics. Even then he has not finished his task but must go a step further in order properly to appreciate the abnormalities: he must consider them in relation to the cultural background in which they occur. It is only by observing the individual from the perspective of the combined biological, cultural, and clinical approaches that the psychologist may serve in his capacity of human engineer to point out the errors society has committed in the name of civilization and to suggest means of preventing their recurrence in the future.

CHAPTER II

THE DYNAMICS OF SEXUAL BEHAVIOR

NATURE VERSUS NURTURE

The problem of the role of sex in the social order is a phase of the larger nature-nurture problem. In the following chapters we shall try to unravel the relative roles of social forces and instinctive urges in determining the relations between the sexes. Starting with the lowest vertebrates and gradually working our way up the evolutionary tree we shall discover an increasing effectiveness of the social group over individual conduct. For example, the sex life of the rodent is largely a function of internal drive while among primates social factors have become sufficiently powerful to control and even to counteract instinctive tendencies. At the human level culture induces such wide variations in sexual behavior from one society to another that it is sometimes hard to recognize them as expressions of the same biological need.

In order to understand how society exerts its influence we should be familiar with the internal dynamics of sexual behavior. Of these, the most primitive mechanisms are chemical.

CHEMICAL RHYTHMS

Rhythm is a universal characteristic of nature. Wave formation of physical energy is well established and suggestive of the periodic functions of living organisms. In trees and plants we find inherent flowering and leaf-bearing cycles (395). Among animals the vegetative drives for the most part display rhythms that reflect the periodic ebb and flow of organic processes. Of

these, no better illustration can be found than the female sexual cycle of which the author previously wrote (539, p. 153):

So striking is this rhythm with its menstrual phenomena in women that it gripped the imagination of primitive peoples who lacked sufficient information to regard it as a natural event. Ellis . . . gives a wealth of illustrative material showing the superstition and taboo with which it was surrounded. . . . Traces of this attitude may still be found in modern times.

Corresponding phases may be worked out between the menstrual cycle and the heat or oestrous rhythms displayed by many lower mammals. Below the mammals sexual cycles are not recurrent throughout the year but are limited to a mating season and are exhibited by males as well as females (512).

The key to the secret of these sexual rhythms lies in the intricate network of the endocrine glands. It is the function of these glands to pour their secretions or hormones directly into the blood stream by means of which they are enabled to reach and affect organs at a distance. They form a system of internal checks and balances, which serves to maintain relative constancy of the internal milieu necessary to life and health. When the balance is temporarily disturbed, a physiological tension arises, accompanied by strong cravings and motor restlessness until relieved by the goal object. In general, this is the basic mechanism underlying the reproductive drives. To understand how it works we must try to trace the pattern of interacting endocrines involved in these functions.

The Pituitary.—The extensive literature in this field reveals a growing emphasis on the pituitary gland as the coordinator of the endocrine system. Even the elevated location of this structure in the brain stem suggests its superiority. Although there are two main parts, the anterior and the posterior lobes, the former bears more directly on behavior. A large number of hormones have been isolated from this part of the gland, some having to do with individual growth and others with that special

form of growth known as "reproduction." As indicated in Figure 1, three main groups of trophic hormones from the anterior pituitary cooperate in stimulating reproductive activities.

The *gonadotrophic* hormones activate the primary sex glands or gonads. Without them normal structural and behavioral sex development is impossible, and their removal is followed by involutional changes in the reproductive tract which simulate castration effects (14). On the other hand, these devastating withdrawal effects may be counteracted by continued injections of anterior lobe extracts (589).

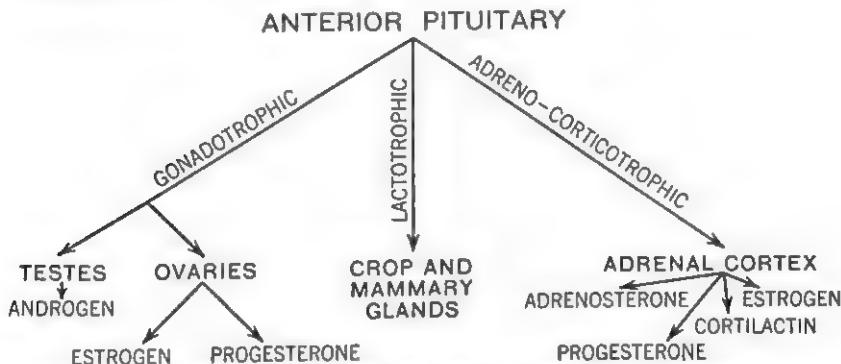


FIG. 1.—Pituitary hormones that aid the reproductive processes.

The *lactotrophic* hormone, prolactin, is also of importance in reproduction. It has been found to stimulate secretory activities of the crop glands in certain birds as well as of the mammary glands in mammals (502, 503). It has even been found to induce broodiness in the jewel fish provided that the nervous mechanisms are sensitized by a first spawning (452, 453). Moreover, it contributes to the initiation of behavior appropriate to the feeding of young in many animal forms. As we shall see, maternal behavior has been induced in virgin rodents by lactotrophic hormones (502, 504).

In addition to these two important pituitary-reproductive hormones there is the *adrenocorticotrophic* group, which stimulates

the cortex of the adrenals to secrete certain supporting reproductive hormones. To a large extent these duplicate the combined action of the gonado- and lactotrophic hormones (191, 293).

The Gonads.—The primary sex glands are the testes in males and the ovaries in females, which when acted upon by the anterior pituitary and synergic endocrines, produce their androgens and estrogens. Not only do these secretions have a priming effect on the reproductive tract but they also determine secondary sex characters and sexual behavior. The role of the gonads has been experimentally demonstrated with a variety of techniques. Conspicuous cases of sexual transformation have been reported. For example, crowing and treading have been observed in domestic poultry following the administration of androgens (266, 698). Among mammals feminization of male as well as masculinization of female behavior has been accomplished in the rabbit by injecting extracts of the opposite sex (215, 302). In rats, females injected from birth with male hormones will copulate with females in heat and may even attempt it with normal males despite strong resistance. Moreover, normal males seem to be strongly attracted to the treated females (342).

The contrast in the action of the male and female hormones is, however, less extreme than might be supposed. There is a close chemical and functional relationship between them, so close indeed that the gonads of each sex have been found to secrete the hormone of the opposite sex in addition to their own (300, 434). This undoubtedly accounts for cases of spontaneous sex reversal observed in a variety of animals (70, 456). Noble and Wurm describe a female heron which displayed the distinctively masculine snap-hiss courtship ceremony. Moreover, in this species, the sex hormones were apparently nonspecific in their effects. Androgen injections in adult females or in the young of either sex resulted in female nest building and brooding in addition to male copulation, while estrogens alone failed to stimulate any breeding activity in either sex (458). Mice have also been found

to display female as well as male mating behavior after treatment with the male hormone although estrogens elicited only the female patterns (189).

Neural mechanisms for activating both male and female patterns are present in each sex and may be excited by either kind of hormone (56). Since the male pattern is set off more readily by androgens and the female by estrogens, masculine behavior normally predominates over feminine in males while the converse holds for females (271).

The hormones, however, are not the only means of activating the neural centers. External stimuli also have this power, and inconsistencies between internal and external agents explain many anomalies of behavior. For example, in the green lizard, *Anolis carolinensis*, androgen injections have been found to elicit both male and female sexual behavior in males, depending on whether the animal has dominant or subordinate status in the group (451). Among rats, males, hypersexed by androgens, showed unmistakable elements of the female oestrous pattern when mounted by other vigorous males (65). Conversely, females have been found to exhibit male copulatory behavior in the presence of a receptive female (64). Moreover, either male hormones injected into castrated females or female hormones injected into castrated males have the effect of increasing sexual excitement. This may be expressed in behavior appropriate to either sex according to the demands of the external situation. Thus the particular form of behavior on a given occasion seems to depend on the balance of power exerted on the nerve centers by internal and external stimulating agents (37, 39, 58, 68).

Meanwhile, within each sex, the importance of gonad secretions has been demonstrated in a number of species by the hormonal induction of precocious sexual behavior and also by endocrine treatment after removal of sex glands from adults. In the male, disintegration of the sexual pattern has followed castration in a variety of animals (132, 593, 594); on the other hand, full sex

functioning has been effected in impotent, immature, and castrated rats by androgen injections (585, 586, 588). In immature chicks both crowing and treading have been induced as a result of androgenic treatment (263, 461). Figure 2 shows a treated male treading a dead chick (461, p. 330).

Turning now to the female sex hormones, we find that in the egg-laying vertebrates the chief need is to maintain the oviducts on a sufficiently high plane of function to evacuate the eggs (14). This is accomplished by estrogen alone. In those forms, how-

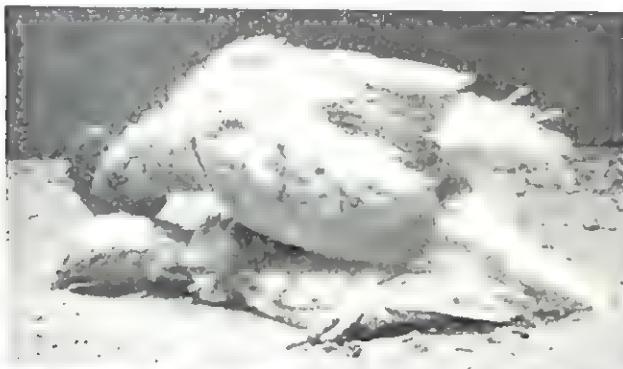


FIG. 2.—A three-week-old male treated with androgen, treading a dead chick. (Courtesy of G. K. Noble, and A. Zitrin, *Induction of mating behavior in male and female chicks, etc.*, *Endocrinology*, 1940, **30**, p. 330.)

ever, which bear live young, a mechanism had to be developed for the retention and nutrition of the fetuses within the mother. Consequently there evolved a second ovarian hormone, *progesterone*, which, as the name implies, prepares the way for gestation. It is secreted at the time of ovulation. In the event of fertilization, it maintains its function during the ensuing pregnancy and has a stimulating action on mammary gland functions which may be accentuated by androgen treatment (353, 475). In the absence of fertilization these pregestational changes abort and a new ovulatory phase begins. The cyclic alternation in function between the two hormones in female mammals is reflected in recurrent periods of sexual receptivity. In the lower

mammals mating is restricted to a preovulatory oestrus, but among higher forms there is greater variability in behavior. As in the case of the male, the hormonal basis of mating in the female has been studied by the administration of glandular extracts to spayed animals. Receptivity has been artificially induced in the monkey, dog, cat, sheep, and certain rodents by the injection of estrogens alone (14). Experiments on the guinea pig and the rat, however, have established the endocrine basis as a delicate balance between the two female sex hormones. Estrogen accomplishes the preliminary priming, but a complete and stable oestrous reaction demands progesterone (66, 171).

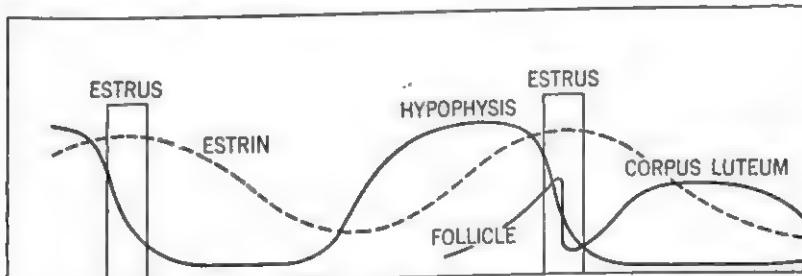


FIG. 3.—Relationship between the pituitary (hypophysis) and ovary in the regulation of the female sex rhythm. (Courtesy of G. W. Corner, *The Hormones in Human Reproduction*, Princeton: University Press, 1942, p. 143.)

The regulation of the female sex rhythm is the result of reciprocal pituitary-ovarian relationships illustrated in Figure 3 (153, p. 143). There is evidence to indicate that there are really two separate ovary-stimulating pituitary hormones. The first induces the follicle to secrete estrogen (estrin) and is checked by it. Thereupon the second stimulates the *corpus luteum* to secrete progesterone. There is a possibility that the thyroid is also involved in the pattern of changes periodically sensitizing the ovaries to gonadotrophic hormones (293, 433, 613).

The Adrenals.—As indicated in Figure 1, the adrenal cortex is a rich source of sex hormones. Estrogen and progesterone, as well as the androgen, *adrenosterone*, have been isolated from this

structure (501). Until adolescence, the development of secondary sex characters is regulated by an adreno-pituitary interchange. After the climacteric, hormonal stabilization is accomplished through increased output of adrenal sex hormones. Thus the ovario-pituitary relationship during the reproductive period is superimposed on this primordial adrenal mechanism (516). The adrenal cortex even contains a mammary gland stimulator, *cortilactin* (627). The vital metabolic and emergency functions of the adrenals are better known than their reproductive hormones. The varied repertory of these little glands has given them a place second only to the pituitary in the endocrine system. At one time they may have served as a primitive center for the autonomic processes. In line with the evolutionary trend toward emphasis on the head end, the control for such functions would have shifted forward and was presumably taken over by the pituitary and neural centers in the brain stem. According to this notion the adrenals would remain a subsidiary lower-center control.

Other Glands.—We have confined our discussion to those glands which directly affect reproductive function. Other endocrines, notably the thyroid and parathyroids, have important, though less direct, bearings on reproduction. We have already suggested ovarian sensitization to gonadotrophic secretion through the *thyroid*. Clinical material showing frequent thyroid involvement accompanying the sexual crises of puberty, pregnancy, and menopause bears witness to the relationship between thyroid and gonadal activities (121).

The *parathyroids* consist of four small glands buried in the tissue of the thyroid. They control the calcium and phosphorus metabolism important for the maintenance of normal tone in muscle and nerve. Lowered blood calcium results in increased nervous and muscular tension. Temporary disturbances of this sort frequently accompany reproductive activity because of the unusual demands made at this time upon the calcium reserves for

forming eggs and developing fetuses. Premenstrual tension and the emotional disturbances of pregnancy and the menopause are partly accounted for on this basis (121).

The *thymus* or so-called "gland of childhood" was at one time considered opposed to the pituitary-gonadal functions, since thymic involution seemed to be prerequisite to pubertal development. Although there is some experimental confirmation for this theory, the evidence is not altogether unequivocal, and the possibility remains that the thymus may have a lymphatic rather than an endocrine function (436).

Finally a word about the *pineal* "gland" is in order, since sexual effects, among others, have been attributed to this tiny mysterious outgrowth from the brain. Today the endocrine status of the pineal body, however, is hardly more tenable than Descartes's claim that it represented the place where the soul could act upon the body. Present information suggests that it may be merely a curious vestigial structure without glandular function (121, 436).

Our survey of the endocrines chiefly involved in reproductive behavior reveals a system of chemical controls regulating all the basic activities of living. If we may regard spontaneous activity as an expression of vitality or energy level, the importance of the endocrines is easily demonstrated. In the work of Richter (497) and others removal of the anterior pituitary, the thyroid, adrenals, and gonads from different groups of rats was followed in each case by a sharp drop in drum running. The sequel appeared in the restoration of such behavioral deficiencies through glandular replacement. The fact that thymus and pineal removal failed to exert similar effects on activity level supplements the negative evidence regarding their endocrine nature (690).

NERVOUS MECHANISMS

We have already noted that the chemical controls interact with the central nervous system. We found them capable of acti-

vating certain neural mechanisms that underlie specific behavior patterns. In turn, external stimuli are able to modify though not control internal rhythms. Correlations between sexual periodicity and seasonal reversals in rutting behavior have been reported in some animals following transference from the Northern to the Southern Hemisphere (107). Similarly, light has been found to shift both migratory and sexual cycles (92, 172, 283). The question that immediately confronts us concerns the way in which neural and humoral factors cooperate in the induction of behavior. To begin with the hormones, there are two possibilities: they may act directly on neural centers or they may affect them indirectly through reflection from visceral organs which they have activated. According to the first alternative, the sexual impulse would arise as a result of direct action of androgens or estrogens upon some central nervous mechanism; according to the second, male sex behavior might depend upon the distention of the reservoirs for semen, female, on uterine congestion. In the latter cases, the changes in sex organs would have been brought about by local action of the hormone. Analogous considerations would make the induction of maternal behavior involve the pressure of milk in the mammary ducts. Although the peripheral theory has enjoyed the greater popularity among psychologists, a careful sifting of the scientific evidence reveals stronger support for the central theory. Mating responses may be induced after complete removal of the reproductive tract, and care of the young in the absence of lactation (543). The heat reaction of the guinea pig in Figure 4 was induced by ovarian hormones after excision of uterus, ovaries, tubes, and vagina (473). Reproductive behavior in the cases cited is under the management of central mechanisms which are directly activated by the hormones involved. As in the case of the emotions, the peripheral organs seem to be cast in a supporting rather than a stellar role. As for the mechanism by which external stimuli exert their influence on internal rhythms, the hypothalamus has been sug-

gested as the brain-stem center that directly activates the pituitary through which widespread changes in the endocrine system may be effected (630).

The most important question still remains as to what centers perform the necessary function of integrating the reproductive behavior patterns. According to Beach, it is the forebrain that serves as coordinator throughout the vertebrates, although dis-

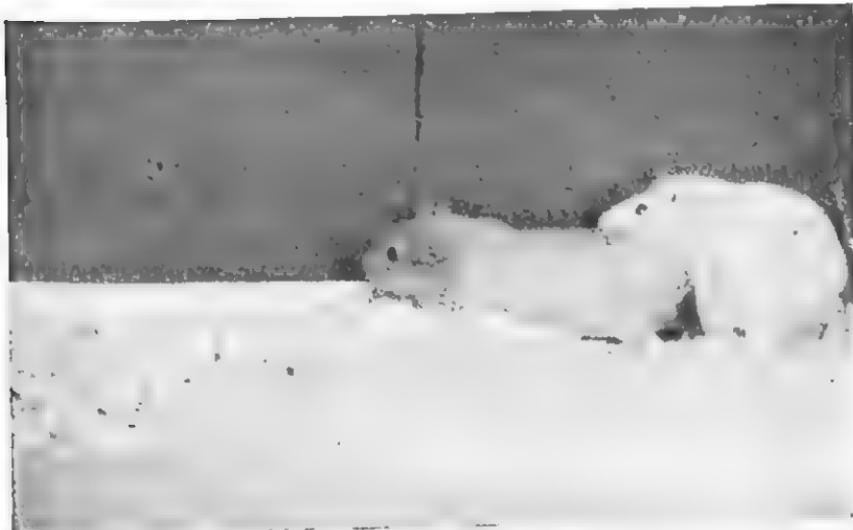


FIG. 4.—Heat reaction of the guinea pig after removal of the entire genital tract. (Courtesy of J. P. Seward Jr., G. N. Papanicolaou, and G. H. Seward, *Artificial oestrus in the guinea pig after removal of the genital tract*, Film shown at meeting of American Psychological Association, Stanford University, 1939.)

crete parts of the reproductive pattern are controlled by lower centers (56). He proposes that the forebrain contains a *central excitatory mechanism* which contributes to sexual excitability by lowering the thresholds of motor response to appropriate sensory stimulation (54).

As the forebrain develops in size and complexity, its role becomes increasingly conspicuous. Below the mammals, mating seems to depend more on single types of sensory stimulation as well as on fixed forms of motor response. Thus in fish, frog,



FIGURE 1

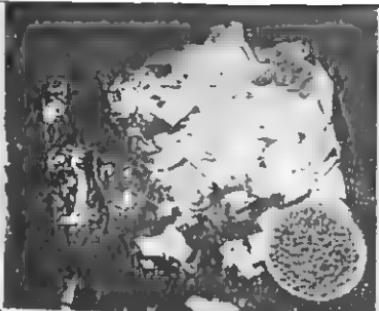


FIGURE 2

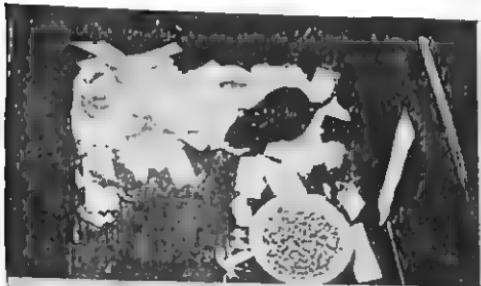


FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6

FIG. 5.—A mother rat's nest-building efficiency decreases according to extent of brain injury. (Courtesy of F. A. Beach, *The neural basis of innate behavior*. I. Effects of cortical lesions upon the maternal behavior pattern in the rat., *J. Comp. Psychol.*, 1937, 24, p. 434.)

lizard, and pigeon, mating behavior is largely dependent on vision. For example, "the blind male pigeon may court the female but is unable to copulate effectively. The female pigeon's ovulatory cycle is initiated exclusively by visual cues" (56, p. 218). As we shall see, analogous observations have been made on the jewel fish. Among mammals sexual excitement apparently does not arise from a single modality but normally represents a summation of various kinds of stimulation. This increased complexity of sensory patterns is based on the development of association areas in the cerebral cortex. These centers not only integrate incoming impulses from various receptors but are also responsible for organizing the effective serial response that follows. Without them, isolated parts of the instinctive pattern may be mechanically executed, but the cortex is essential for integrating them into a biologically effective whole. In the rat, as indicated by Figure 5, (71, p. 434), destruction of cortical centers was found to result in impairment of maternal behavior roughly proportional to the extent of the injury. In this form, extensive cortical lesions may leave the female able to carry out her maternal duties in a stereotyped fashion and at the same time render her incapable of modifying her responses to sudden environmental changes (71, 72). Obviously her learning ability suffered from the brain injury. In this connection it is worthy of note that female rats scoring above average in maternal behavior were also found to rank above average in maze learning (67). The cortex is also essential in mating. Without it, the male pattern cannot appear because it is responsible for the active exploration, stimulation, and pursuit of the sexual object. The response sequence, however, is not dependent on the cortex (60). In the case of the female which plays a more passive role, the cortex is not essential to mating behavior in an oestrous rat. It is necessary, however, for soliciting attention from the male and for integrating the discrete responses into a smooth and biologically effective pattern (61, 62).

THE ROLE OF EXPERIENCE

As the ability to profit by experience improves, mechanical inherited forms of behavior gradually give way to more flexible, more readily modifiable modes of response. Adjustment and personality types become increasingly independent of structure and more amenable to social influences. By the time we reach the primates, the complete mating or parental pattern is not inherited but must be filled out through individual experience. Indeed experience becomes so important that instinctual components are obscured. In mating, for example, it is often quite impossible to distinguish between behavior springing from tissue need and externalized forms of the same behavior originating from the exigencies of the social situation. Two manifestations of sexual behavior, which are superficially alike, may be differently motivated—one may represent the biological drive; the other submission to a more powerful individual (540). At the human level so far has the balance shifted from internal to social determinants of behavior that a false dichotomy has sometimes been suggested between men and lower animals. This is misleading since the distinction is merely one of degree. We shall amply demonstrate in the following chapters that the study of sex in animal society throws much light on human sex relations.

CHAPTER III

SEX AND SOCIAL ORGANIZATION FROM FISH TO MAMMAL

Reproductive behavior bears an important relationship to social organization throughout the evolutionary scale. It has even been suggested that primitive forms of mass relationship may have had a hand in shaping sex itself (6). Once started, sex became one of the integrating factors in further social development (313). It resulted in the family, the dynamic unit of society as we know it. In the course of evolution the increasing dependence of offspring on parents has been accompanied by a corresponding increase in the social control of individual conduct.

In the following pages we shall attempt to trace the development of sex relationships against the background of social organization from the lower to the higher organisms. We shall select our illustrations from the vertebrate series because similarity of basic mechanisms lends significance to intercomparison. From fish to man we find a universal tendency for the members of the various classes to arrange themselves in social hierarchies (158). In the lower forms social prestige is probably determined to a large extent by physical strength; in the higher forms a greater part is played by social factors. The dominance status of the individual in his group determines his opportunity to satisfy the basic drives involving preservation of individual and species, thus serving as an important agent of natural selection. It ensures survival of the fittest in the struggle for food as well as victory to the strongest males in the competition for females. In many nest-building vertebrates males fight to secure and maintain territories necessary for mating and brooding. More-

over, in those forms which enlist the cooperation of both parents in the duties of incubating eggs and rearing young, elaborate patterns of courtship appear, containing elements of both territory defense and nest construction. Obviously a close relationship exists among the behavioral patterns of social dominance, territory defense, and courtship. It is no accident that their common medium should be the male sex hormone, as revealed by experiments to be reported below. Such findings suggest that the male sex hormone is an important determinant of the organism's vigor in fighting competitors as well as in procreating its kind. In the higher vertebrates, whose drives become externalized, social influences combine with hormonal ones to produce self-confidence which carries high survival value. In fact at the upper end of the scale "natural" selection becomes largely transformed from a biological to a social principle. Bearing these considerations in mind, we may now examine the evidence from representative vertebrates.

SEX AND SOCIAL CONTROL IN FISHES

A Dominance Hierarchy.—There is little material on fishes at the present time concerning the relationship between general social organization and reproductive activities. The most relevant information on dominance hierarchies seems to be included in one small paper on the swordtail (448). This interesting fish was found to display a rigid social order within each sex. Despots assumed the right to attack subordinates without resistance and enjoyed greater access to open spaces, to food, and, in the case of males, to females. The importance of dominance to this species was indicated by its persistence under unfavorable conditions. When the water in which the fish lives was cooled, dominance continued after sexual motivation had ceased. Among the determiners of dominance, weight and display were prominent. The sword greatly enhanced prestige, and its removal resulted in a lowering of social status. Of special

interest was the appearance of length of residence as a determiner of dominance. Thus experience begins to play its part in a picture still dominated by maturation.

Dominance and Breeding.—Dominance is frequently a social asset in breeding activities. In the case of the jewel fish, for example, the individual's ability to secure a stone, a flower pot, or other suitable place on which to attach eggs as a nest site and to defend the surrounding territory depends on dominance. As in the swordtail, the resident male has the advantage over a stranger. A dominant male, placed in a new tank, usually becomes subordinate to the territory-guarding resident male. If the newcomer had been courting in his own tank, however, he might succeed in taking the resident's potential mate away from him (450).

Size is an important medium through which dominance may be expressed. When two males, both of which hold territory, are placed in a new tank with a ripe female, the larger male usually dominates. Noble and Curtis describe an instance in which two such males locked jaws and struggled. Within two minutes the larger had driven the smaller to the far end of the tank. The female mouthed the large one gently and ultimately became his mate, after joining forces with him in attacking the smaller male.

Color also plays a part in dominance as well as in breeding. Conspicuous nuptial colors in fishes and higher vertebrates serve to intimidate rival males and drive them away from the territory. The defense of a nest site involves the reddening of the ventral surface, raising dorsal and pectoral fins, and at the same time lifting the gill covers to reveal the red "eyes" beneath. In response, a rival male either returns the display or quickly escapes (446). Color, however, must be backed up by threatening gestures to be effective. Artificially staining a subordinate fish red will not make him dominant over his rival because his behavior does not change. Although the vivid coloring may attract the female's attention, in itself it is not sufficient to hold her. The color is

important in accentuating the appropriate movements that are necessary for the formation of nuptial bonds between mates. Upon a female's arrival on his territory, the male courts her with gesturing symbolic of nest building. These ceremonies ensure recognition between mates and also seem to facilitate the female's progress from one stage of the mating cycle to the next. This is presumably a case of stimulation of the pituitary through central nervous connections which we described in the preceding chapter. As we shall see in higher organisms, especially birds, the nuptial bonds aid in the proper timing and integration of the respective breeding activities of the partners. After cleaning the nest site, laying takes place, the male synchronizing with the female by dragging his genital tube over the egg mass at frequent intervals. The eggs are guarded by the parents alternately, one or the other assuming most of the duties. During this time, the eggs are fanned by the parent remaining on guard.

After the stickleback male, another well-known nest builder, has prepared the nests, he invites the female to lay eggs in them. When ready to lay, she displays a characteristic behavior pattern which includes swimming toward the male, holding her body in a semivertical position, and pointing her head upward. These movements serve as a signal to the courting male. The female apparently prefers to follow red males exhibiting a special kind of movement. After the female has deposited her eggs, the male, stimulated by the characteristic odor of unfertilized eggs, inseminates them. He then drives the females as well as other intruders away and remains on guard for days. Victory in fighting in this form does not seem to depend directly on the strength of the male but rather on the possession of a nest and eggs (345, 615, 674).

DEWLAP DISPLAY IN THE LIFE OF LIZARDS

Dewlap Display and Dominance.—The reptiles may be represented by the familiar American chameleon, a small green lizard whose reproductive repertory has been observed in field and

laboratory. This form is of interest because of the development of a special behavior pattern, the dewlap display, used in both courtship and fighting (192, 449). Nowhere do we find more beautifully illustrated the relationship between dominance and mating than in this special form of behavior. The dewlap is a fan of skin which is protruded beneath the lower jaw. Its red color attracts the attention of mate or rival. During the breeding season males, and under certain circumstances females, will fight to defend the territories into which they have migrated. In a Cuban field study of one species, Evans (194) mapped out the territories of 47 males and 8 females, by placing a test specimen somewhere within the area and observing attack by the resident. He found that an individual or a mated pair dwell upon a particular territory which averages 400 square feet and contains a lookout in the form of a tree or post. If a strange lizard is placed upon the resident's post, a duel ensues, which Evans (193, pp. 217-218) describes:

The urge to acquire and to hold territory against other males is very marked. The resident male, upon the approach of a strange male, will extend a dewlap or fan lying in the mid-ventral line beneath the lower jaw (Reflex 1). This is a challenge or warning to the stranger. If the latter does not reply to this challenge, no fighting is apt to occur although the resident male may persist in his challenging display for some minutes. If the nonresident also flourishes his dewlap, then the dorsal crest along the neck of each male rises slowly to a height of perhaps 4 mm. (Reflex 2) and they begin a sidewise approach toward each other (Reflex 3) while they flatten their sides to such an extent that the belly drags on the ground (Reflex 4). When they are within 6 inches of each other, they continue to strut back and forth with dewlap flashing and body flattened. Many encounters end at this point. The male that is most impressed with the display of the other moves off lowering his crest and withdrawing his dewlap, his body no longer flattened. In other words, these four reflexes combine to produce an intimidating or bluffing effect often making it unnecessary to go farther to defeat a rival.

However, if neither male is bluffed by this mutual display, their movements become swifter, they move closer, and opening their mouths wide

each strives by means of swift snaps of the jaws to catch the snout of the other (Reflex 5). At last, the defeated male beats a hasty retreat (Reflex 6) while the victor pursues him for a short distance (Reflex 7) and then returns to a vantage point overlooking his territory and flashes his dewlap repeatedly (Reflex 8). The defeated male is not molested further unless he approaches the victor. In this case a flash of the dewlap is sufficient to send the victim into hiding again.

The relation between territory defense and dominance was revealed by an experiment in which 19 males were placed together in one cage and their relative dominance determined on the basis of a succession of spontaneous encounters. It was significant that 90 out of 98 face-to-face combats were won by the resident male, even though the stranger had dominated his home cage (192, 195). Thus familiarity with the external environment which depends on learning and memory contributes significantly to behavior.

Although territory defense is not an exclusively male prerogative, it seldom occurs in normal females. The behavior of spayed females, however, is similar to that of males, suggesting that ovarian hormones inhibit fighting (193, 196). Injections of male hormone, on the contrary, apparently induce fighting as well as male mating behavior. In a carefully controlled experiment on immature males, 206 out of 214 fights were won by treated animals, the dominant individual in each cage also copulating most frequently. The established dominance status in turn was apparently the determining factor in the kind of sexual behavior displayed rather than the sex of the individual. In one case a male displayed male behavior in the presence of a subordinate but acted like a female when confronted with a more dominant male (451). These observations are important in showing again that *even in species whose behavior is chiefly determined by hormones social factors have begun to exert a definite influence.*

Dewlap Display and Reproduction.—Not only does the dewlap display serve to intimidate rival males, but it also plays a part in

courtship. Frequently it initiates mating. In other cases it appears in response to head nodding on the part of the female and eventuates in pursuit and copulation. So important is the dewlap mechanism to this organism that it determines to a large extent the form of family grouping. The focus is a single male, usually surrounded by from one to four females. If there are several females, one dominates the others and will even attack a nonresident female placed upon the territory. If the male is present, however, he will prevent the resident female from attacking the stranger and will proceed to court the newcomer. Young, newly hatched from eggs presumably laid up by a resident female, may remain for a time upon the territory. Young males will be driven away sooner or later by the parental dewlap, although there is nothing to prevent young females from remaining indefinitely (194).

In summary, we may say that in the American chameleon, social interactions center around dewlap display which forms the basis of defense, mating, and family structure.

SEX IN BIRD SOCIETIES

Avian Social Orders.—The experimental approach to avian social orders was ushered in by Schjelderup-Ebbe's famous studies which included such diverse forms as the domestic hen, jackdaw, parrot, heron, and others (526). On the basis of his observations he originated the concept of social dominance. Among all the groups studied he found what he believed to be regular peck orders based on dominance-subordination relationships established between pairs of birds after an initial encounter. Carried away by his own enthusiasm he went so far as to describe the bird's feelings in the matter: "The face of the despot would radiate with joy of satisfied pecking lust and the fury could clearly be observed in its eyes." Whether the dominant bird is stirred by these human emotions, no one will ever know. We cannot follow Schjelderup-Ebbe into the realm of his colorful

imagination but shall have to be satisfied with his more prosaic observation that social dominance was expressed through pecking, raised feathers, and throat sounds.

Dominance seemed to reflect general physical vigor. Weakness resulting from weariness, illness, or senility resulted in a lowering of status. The role of the sex hormones was suggested by the dependence of dominance upon age and sex. Schjelderup-Ebbe observed that young birds showed no despotism until about 20 to 30 days after hatching. Since dominance behavior emerged at about the same age even in cases where little ones had not observed despotism among their elders, there is a strong probability that sexual maturing is the determining factor. Moreover, young males in whom the sex instinct began earlier usually dominated young females, although in adults there was no general rule concerning sex dominance. In some species the males tyrannized over the females, while in others it was the female that henpecked the male. In Schjelderup-Ebbe's opinion female despotism is biologically undesirable inasmuch as it interferes with pairing and thus militates against increasing the species.

With respect to domestic poultry, later work has in general supported Schjelderup-Ebbe's findings. Allee found a most regular social hierarchy in White Leghorn hens (3, 4). In his opinion, experience as well as hormones plays a part in determining an individual's social status. He points out that group organization among birds depends on their ability to recognize flock mates as individuals. As far as sex differences are concerned, it is the more showy, the larger, or the stronger sex that is dominant. This accounts for the fact that in most species of birds males dominate females. The importance of dominance in the breeding activities of poultry is shown by the fact that those high in the social order lead the freest lives and thus have the best opportunities for becoming parents. This means greater freedom for copulation on the part of cocks, coupled with greater egg production for the less molested high-ranking hens. Allec

cites confirming evidence reported on the sage grouse of Wyoming in which fewer than 3 per cent of the cocks made 87 per cent of the matings. Such data indicate how social position in the flock determines the contribution a given individual is able to make to posterity.

Dominance Status and Breeding Behavior.—In an ingenious attempt to discover social laws by an investigation of the elements involved, Murchison (431, 432) reduced social interaction in the barnyard to three "social reflexes," involving approach, fighting, and mating behavior. These were all carefully quantified and the relationships plotted. The results supply further evidence of a correlation between social dominance and copulatory behavior in the male, and between social dominance and "sex appeal" in the female.

Reproductive behavior in relation to general social organization has been investigated in many other birds. Jackdaws assume social ranks according to the order in which they become sexually aroused and mated (222). The social status of a female of this species may be elevated by pairing with a male of superior rank (447). In parakeets, a shift in dominance status occurs during the breeding or nesting period. At that time males assume dominance over females although in other seasons even low-ranking females dominate high-ranking males (402). The change in relative dominance with breeding condition suggests hormonal controls. Whether increased estrogen secretion by oestrous females inhibits dominance behavior, or increased androgen secretion by nonoestrous females *stimulates* dominance behavior, is still an open question.

A species that has been very popular with investigators in this field is the pigeon (403). Flock organization is so flexible in this form that peck dominance shifts from one bird to another momentarily. It is of particular interest that the bird with temporary dominance, whether male or female, usually displays the crop swelling, cooing, and bowing which are characteristic

components of the male mating pattern. This suggests the common role of the male hormone in both sexual and dominance behavior. The dominance pattern seems to be the more general, elicited by a wider variety of stimuli.

Nest building plays a conspicuous part in the reproductive repertory. One of the mating birds sits crouched on the floor of the cage and gives a low chuckle. Its mate frequently approaches and preens the neck feathers of the nest-calling partner. This alternates with periods in which either bird walks about the cage picking up straws. After eggs have been laid, male and female take turns at incubating them. In the ringdove, the female sits on the nest at night and the male takes over during the day. The exchange is marked by a ceremony as in the case of certain other species. The female seems more attached to the nest than the male, however, and will return to it during the day in the event of the male's desertion (197). The parents also cooperate in feeding the newly hatched squabs. The importance of the gonads in breeding is revealed by the gradual disintegration of such behavior after castration (132). Moreover, in the absence of previous experience, male doves reared in isolation are capable of performing the motor pattern (155). Nevertheless, hormones are not solely responsible for sexual behavior and birds without gonads have been known to develop both mating and brooding behavior (500). The organization of the parts into a structured whole and their direction toward suitable objects depend on practice. Further evidence of the importance of experience is the dove's adaptability to changes introduced into the usual nesting procedure. These reputedly monogamous birds are easily induced to take a second mate if given the opportunity. They will then vary their normal routine to the extent of building two nests, incubating two sets of eggs at the same time and raising two sets of young (197). We have to attribute the dove's fidelity under normal conditions to his limited opportunity.

No bird has contributed more to our understanding of breeding behavior and its relation to other aspects of social life than the black-crowned night heron (460). In this species a dominance hierarchy is in evidence only in fledglings before pairing has occurred, or under abnormal conditions of crowding. The peck order is important in regulating the formation of pairs, in which one bird dominates the other. Pair formation is usually initiated by the male which occupies a perch near an old nest and attracts the female with a special song and dance (16). The dominance is expressed by the higher head position in billing. Upon failure of a subordinate bird to lower its head, the gentle billing gives way to more aggressive thrusts and finally to the extreme territory defense movements. The feeding responses of the young in which the older nestlings vie for the privilege of stroking the parent's beak suggest a genetic account of peck dominance in this form (460). According to this notion, each bird attempts to keep its head highest in the struggle, the most successful maintaining the highest position. The effective gesture is presumably carried over to later life and used as a means of social and sexual control.

Dominance originating in relation to food becomes a sexual symbol in the case of food begging in the laughing gull. During this ceremony in which sexually active pairs indulge, the female is severely pecked if she raises her head higher than that of the male. By this technique, the subordinate posture in the female, which is an absolute necessity for coitus, is achieved (459). These adjustments reflect a delicate balance between internal and external factors. Androgens injected into castrates will induce breeding calls and postures characteristic of male mating behavior, and estrogens will stimulate them to respond to the male sex call and to food begging with lowered head. Pairing up, however, does not automatically follow treatment with male hormone but occurs only in response to the female behavior-pattern which in turn may be induced by female hormones (457).

Dominance and Sexual Hormones.—The many indications of the importance of sex hormones in dominance status have led to a number of attempts to change the dominance level experimentally by gonadal injections. In hens, the administration of male hormone to those of low rank produced a rise in social status to the extent that in each flock an injected bird eventually occupied the top position (9, 11). That this is a specifically androgen effect is suggested by the negative results obtained by the administration of estrogen (8), thyroxin (10), and an adrenalin preparation (7). Unfortunately we do not know to what extent the changes represent direct effects of the hormone and to what extent they may have been indirectly brought about through the impressive effect of the enlarged comb and the behavioral changes following prolonged treatment. The case of BY cited by Allee illustrates the interaction between hormonal and experiential factors. After 7 weeks of daily androgen injection, she stood highest in her flock where she had previously held lowest rank. In addition to the great increase in comb size and other head furnishings, her whole stance had changed: she was more erect and cocky, crowed repeatedly, and three times went through somewhat abbreviated male courtship pattern. After the effect of the androgen had worn off, the hen resumed her habit of losing contests with others but continued to hold her position as top-ranking bird in her own group. She had apparently retained her prestige for a while due to social lag. A succession of defeats, however, finally lowered her status (5). In this connection we are reminded of the hen reported to exhibit male treading behavior after androgen treatment (698).

Similar experimental modification of the social hierarchy has been induced in the ringdove which resembles the pigeon in pecking organization. Androgenic treatment of a subordinate bird of either sex improved its social status and increased its vigor and effectiveness in combat, leading to a more stable type of social hierarchy. In hitherto passive females, male characteristics

appeared in a progressive series. In view of the fact that recognition between individuals in this species is based on color or contour peculiarities, it seems probable again, as in the case of hens, that the higher dominance status is accounted for in part by the changes in physical appearance due to the hormone, as well as by the changed behavior (83, 84).

The canary has recently attracted the attention of research workers in this field. Normally the males fight more than the females and show unquestioned dominance over them. At the height of the breeding season, however, both sexes become more aggressive, the laying females dominating their mates and assuming the male functions of singing, fighting, and masculine mating behavior. The failure of estrogen injections to induce such changes in the behavior of spayed and normal immature females strongly suggests androgenic substances secreted by the normal female as the determining factors (554). This hypothesis was borne out by the results of male hormone administration to low-ranking females. In a flock of six, after a 32-day series of injections, the experimental animals occupied the top three instead of the bottom three positions. Moreover, they displayed parts of the male courtship pattern although no actual copulation or nest building occurred (553). In other experiments, singing was induced in females by androgen treatment (34, 359).

The herring gull affords an impressive example of the importance of hormonal controls in dominance behavior (100). Boss reports that androgen injections in juvenile birds and castrates induced premature aggressiveness, interest in territory defense, and nest building. The treated males were the most aggressive birds in the colony. When several males were placed in the same cage, a fight resulted and continued intermittently until one assumed leadership of the cage. When the hormonal concentration of the leader was reduced, he gradually lost control of the cage to one of the other treated birds. In many instances it was found necessary to remove the displaced leader because he refused

food, stood alone in the corner, and seldom joined in any of the activities and calls of the colony. If placed in a cage with controls or with estrogen-treated birds where he quickly assumed leadership, he regained his appetite and interest. In the case of females, it was noted that those receiving high concentrations of male hormone dominated females on lower dosage and controls of either sex, but that they never dominated males receiving much lower concentrations.

Dominance and Territory.—Dominance status determines how large a territory a bird may possess. The acquisition of territory often represents as severe and formalized struggle as we have seen in the lizard. Among many birds, the virile male makes himself conspicuous by color or sound and threatens all male intruders and females whose sexual phase does not synchronize with his own. For example, in the song sparrow the battle for territory occurs in four stages: the invader appears and, singing constantly, stakes his claim. The defender gives chase which culminates in a decisive fight on the ground. Finally, each bird proclaims ownership of his own territory (440). Another effective defense is expressed in the herring gull. His folded wings are raised as he struts out to meet the audacious newcomer. On his way, he picks up pieces of moss, twigs, or grass and throws them to one side or the other. A fight ensues in which one bird clamps his bill over the other's and tries to wrestle him to the ground where he can get a better hold on his opponent's throat. All the while, the struggle is accompanied by a deep, doglike growl (100). As we have already discovered in lower forms, territories are frequently associated with reproduction. In nest-building animals, territory is important for the smooth execution of courtship and brooding activities. It also serves the useful function of ensuring and safeguarding an adequate supply of food for the young (616).

External Regulation of Reproduction.—Although internal factors play an important role in dominance and mating behavior

of birds, the contribution of the external situation should not be underestimated. The cooperation of both parents of many species in brooding and in the care of young demands that the parents remain together during the mating season. As we have noted in fish, the formation of these nuptial bonds is ensured by the colorful courtship ceremonies which make their appeal through the external sense organs. Frequently the courtship represents a rather stereotyped symbol of the nest building that is to follow. An illustration is a ceremony in the black-crowned night heron which involves a formalized manipulation of sticks by the male. The male, standing over a crude nest platform or at a distance from it, holds a stick in its bill and loudly snaps its bill on it while moving its head rhythmically up and down. It is significant that by treating a female with male hormone it is possible to increase her interest in twigs until the full male pattern emerges (455, 458).

The elaborate ceremonies characterizing bird life indicate the importance of regulation by auditory and visual cues. In the same species of heron again, the voice is the essential factor in initiating and synchronizing gesturing while the pairs are held together primarily by visual stimulation (460). Mounted specimens of females have elicited appropriate male courting reactions in a variety of species (454). Moreover, vision plays a large role in the recognition of the sex partner. Under normal conditions the heron can recognize its mate after a separation of 20 days or more, but if the color pattern of the head has been modified by artificial refeathering, as small an interval as 6 days will result in failure.

Among birds in which audition is of paramount importance in social life, we have already referred to the song sparrow. The house wren affords another excellent illustration (324). Three types of song have been distinguished: The territory song serves to notify other males that the area is occupied and to advertise the singer's presence to the females so that they may be enticed

into his territory. Next, the mating song expresses great sexual excitement and seems to stimulate the female to copulation. Finally, the nesting song apparently reminds other birds that the territory is occupied and aids in coordinating the activities of male and female around the nest.

In the care of young, external factors play an important part. In many forms, like the pigeon, the parents take turns at incubating the eggs and caring for the chicks. The common tern is another form that engages in such activities. The sight of the eggs is very stimulating and strongly attracts the female. Her broodiness is communicated to the male, who then shares in the duties of incubation. The exchange of places on the nest is often marked by an elaborate ceremony, one bird inviting the other off the nest with a fish. An indication that internal factors predominate over external is the fact that the female spends much more time on the nest than the male (470).

A primitive bird that demonstrates many of the phenomena we have been describing is the penguin. A field study of the Adélie penguin in the Antarctic revealed that some individuals lord it over others, rob them of the stones with which they build their nests, and often fight violently for possession of them (360). In these birds the care of the young has important social ramifications. At first it is easily managed by the cooperation of both parents. One parent must stay on the nest to keep the chicks warm, to guard them from enemies, and to prevent their straying. The other must go on to the sea some distance away, for food. The young penguins grow very rapidly and within as short a time as two weeks require more food than a single bird can supply. By this time their downy coats have become thick enough to protect them from cold without the physical proximity of the parent, but they still require protection from enemies and from straying. To meet these needs a communal "nursery school" arises in which the offspring of colonies are herded together and guarded by a few old birds. By this ingenious expedient the others

are freed for foraging and the continuity of the group is ensured.

An analysis of many aspects of penguin life has recently been made by Roberts (509). He finds that in the beginning of the breeding season the role of the sexes in courtship is interchangeable and the behavior of *both* sexes approximates that which is later followed by the male alone. Mating behavior depends on relative dominance, and individuals of a pair may vary from day to day in mutual social status. The essential difference in the behavior of the sexes is that during the breeding season a male always tries to dominate weaker birds while an oestrous female temporarily loses this urge.



FIG. 6.—Penguin announcing his presence by bowing to his mate. (Courtesy of B. Roberts, *The breeding behaviour of penguins*, Brit. Museum, Sci. Reports, Brit. Graham Land Expedition, 1934–1937, p. 253.)

Courtship ceremonies involve sexual posturing which supplies the external stimulation necessary to effect a synchronization between the sexual processes of the male and female. During early stages of the breeding cycle, one bird will bring a pebble to the nest and lay it at the feet of its mate. This ceremony is followed by mutual bowing and hissing. The other bird devotes itself to arranging the nest material. Thus the labor of nest construction is divided between mates. Brooding is also shared, although as in the tern the female spends more time on the nest than the male. During this phase the threshold to aggressive behavior is very low and every penguin, except the mate, that comes within the territory of a nesting bird, is attacked. As shown in Figure 6, the mate announces his presence by bowing

to the one sitting on the nest (509, p. 253). The importance of appropriate gestures was suggested in the case of a stuffed specimen which was attacked as if it were an impostor. The internal state apparently predisposes the individual toward aggressive behavior and at the same time sensitizes it to certain types of external stimulation. Out of breeding season no fighting occurs.

We find that the display and adornment in birds as in lower organisms probably aid in inducing ovulation and related processes at the most appropriate time (32). External factors involving the social group have also been found to affect the sexual behavior of birds. The most extensive work along this line has been done on cocks. Changing the number of available hens was reflected in corresponding changes in frequency of copulation; the more hens the more sexual activity, and vice versa. Surfeiting a cock with the same hens decreased his sexual appetite, while introducing new partners stimulated it. Even the ingrained daily rhythm gave way to new habits (560). General social status determined by experience is also reflected in the sexual sphere. In the ruffed grouse, for instance, a bird that has been cowed by another may never come into the mating phase at all (12). In the light of the evidence, we may conclude that although reproductive activities below the mammals seem to be primarily dependent upon internal mechanisms, they are subject to regulation and change by external influences.

CONCLUSION

Our survey of the lower vertebrates shows mating to be inextricably bound up with dominance behavior in the pattern of social life. Their common core seems to be principally the male sex hormone, which simultaneously induces social and sexual dominance. The female sex hormones, on the other hand, are more restricted to reproductive activities and may even exert an inhibitory effect on dominance. In addition to the male hormone and other internal factors, certain external influences

directly affecting the sense organs or operating on the basis of habit independently contribute to each pattern.

The relationship suggested between social dominance and male mating behavior may be represented by Figure 7. The shaded portion indicates those aspects of each pattern that can be attributed to androgen and supporting hormones; the clear areas signify behavior in each case due to nonhormonal external factors which are independent of each other.

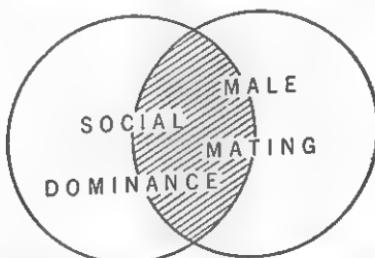


FIG. 7.—Suggested relationship between social dominance and male mating behavior.

As for family life, we may trace its crude beginnings in the primitive brooding activities of the lowest vertebrates. There is little, however, that should be dignified by the title of parental care until we come to the birds. At this level, parental care varies according to the need of the offspring, and in any case is ephemeral. As soon as the young have become independent, the attitude of the parents toward them changes from solicitude to hostility. For the more enduring primary group relationships for which we customarily reserve the term "family" we shall have to turn to the mammals.

CHAPTER IV

SEXUAL BEHAVIOR IN RODENTS

SEX AND SOCIAL RELATIONS

Beginnings of Family Life.—When we reach the mammals, the scene changes. The increased ability to learn from experience makes for greater variability of behavior. It also makes for a prolonged infancy. Although the individual depends less upon ready-made innate modes of adjustment, he depends more upon other individuals in his immediate circle for the satisfaction of his needs. Special maternal mechanisms are evolved to nurture him through the precarious period of extended infancy. With few exceptions the young are carried within the mother's body for varying gestation periods. After birth they suckle milk from her teats and nestle warm and safe near her large soft body. Even after they no longer depend upon her for the basic necessities of life, there remains a residual social dependence which increases the time of maternal effectiveness. The close relationship between mother and offspring becomes the nucleus of the increasingly permanent relationships of family life upon which the more general social structure rests.

Among the mammals we may distinguish different levels. In the lower forms the various patterns of motivation are largely instinctive, specific, and independent of one another. As we proceed to higher levels, they become more widely generalized and interrelated as a result of externalization. Behavior appropriate to one drive may be used in the service of another. In the highest forms a given behavior can be interpreted only in the light of the total situation in which it occurs. In mammals,

most of the experimental work has centered around the rodent and the primate. Fortunately these groups represent the lower and higher ends of the mammalian class. In the interests of clarity and scientific reliability we shall confine our material to these groups at the sacrifice of many interesting observations on intermediate forms.

Sex and Dominance.—Our knowledge of the lower mammals is derived largely from experimental studies of the rodent. The vast bulk of this literature deals with mating and maternal patterns but without reference to the general social order. Uhrich (629), however, has attempted to work out for the mouse what others have done for lower vertebrates. He studied social organization in several hundred animals of both sexes. Working with numerous small groups, he found wide variation in type of organization manifested, varying from those dominated by a single individual to those in which no fighting appeared at all. In the most frequently occurring form a single male enjoyed exclusive dominance. Age and weight showed little correlation with social dominance in adult groups, but castration exerted an inhibitory effect. Fighting in the rat as in the lower organisms bore a close relationship to maleness. Fights between females were rare provided that the animals had been together for several days, but they did occur in cases where females were newly combined in the same pen. Like the territory defense below the mammals, the home cage predisposed toward fighting success in the rat. Although many of the aspects of social organization which this interesting study reveals at the rodent level have made a prior appearance in the phylogenetic scale, they now play a less conspicuous part and are no longer so essential for reproduction.

Unfortunately there are no other experiments on the relationship between sexual behavior and dominance status in the rodent. Some interesting observations bearing on this point, however, were brought out in a study of the brown rat (422).

When the rats were placed together, the males immediately assumed an aggressive attitude, fighting all that opposed them. The females soon yielded to the males, lying passively on their backs and permitting the males to nose them, as if to express their recognition of male superiority. That dominance exerted some effect on mating was suggested by the fact that females in heat apparently preferred to mate with large males which could boss them than with younger males, smaller than themselves. In line with these results are the findings of several investigations of the white rat that more aggressive males are capable of eliciting more intense responses in oestrous females (35, 282, 591). That aggressive behavior at the rodent level is not exclusively a function of hormones but may be a matter of experience is clearly demonstrated in Allee's work (5, 236). He was able to condition a mouse downward in its social scale by repeated defeats. In one series of experiments he exposed the top-ranking mouse W1, from a passive white strain, to attack twice a day for eight days by the leading mouse in the belligerent black strain. When again matched with the whites the previous champion submitted to every opponent including the most passive one of all. After 180 fights among themselves, W1 had regained his aggressiveness and again achieved highest rank within his own group. He remained passive, however, when matched against even the least aggressive of the belligerent blacks. Not only can social status be lowered by training, but the change may be made in the reverse direction although with greater difficulty. Experiments of this sort show the importance of social influences in rodent behavior.

It has been incidentally noted in the guinea pig that among males reared together, one or two dominate the others (33). In our own work, we observed differences in dominance within groups of females. In one amusing instance the boss had all the others lined up in a row in military style and would permit no break in the ranks. Fighting behavior, though not confined

to males, is much fiercer among them. That it is correlated with male hormone action was forcibly demonstrated to the writer. Her finger still bears the mark of the hostilities ensuing upon placing an androgen-treated female in the same cage with a normal male.

Sex and Timidity.—In male rats Anderson found that the least timid were sexually the most potent (24, 25). Timidity was measured by the amount of defecation in a novel situation. Congruent findings were reported for females. The period of sexual receptivity is accompanied by a drop in the number of fecal boluses excreted (26). The author attributes this change to the physiological condition of oestrus (27). A direct comparison of males and females by means of timidity tests reveals less timidity on the part of the females. Early removal of sex glands does not alter this relationship (22).

DEVELOPMENT OF SEXUAL BEHAVIOR

Obviously there is insufficient material available on social organization in the rodent to provide us with a frame of reference against which to view reproductive activities. Compensation for this lack, however, may be found in the wealth of studies dealing specifically with mating and maternal functions. In the light of this illuminating literature we may trace the origin and development of these behavior patterns and in that way determine to what extent such behavior is subject to socialization.

The Awakening of Sexual Drive.—In the white rat, copulation in males (590) and receptivity in females (592) appear at about 50 days. Even when kept in isolation from the time of weaning, the young males show surprising facility in their initial copulations (57, 591). Marked individual differences in sexual excitability have been detected in the rat as in males of every species. If very excitable, they may attempt to copulate with nonreceptive females and even show sexual excitement in the presence of young guinea pigs of their own size (591). Less excitable males,

on the other hand, require the biologically adequate receptive female to arouse them sexually and, if they are very sluggish, may not respond even to her (55). The overt copulatory pattern is thus a product of the male's internal state and the intensity of the external stimulation. Consequently, excitability may be increased either by lowering the threshold of the central excitatory mechanism by androgens (56, 63) or by increasing the intensity of the external stimulation through experience. After experience, sexual behavior may continue even in the absence of sense organs that normally play an important part in such activity (54). Since ability to profit by experience depends upon the cerebral cortex, these results are easily understood. Cortical injuries interfered less with the motor pattern than with the animal's ability to recognize the adequate stimulus (59, 60).

As for receptive females reared in isolation, the initial mating response is immediate, indicating that like the motor pattern in the male it emerges without training. Moreover, the ages at which the first heat occurs closely correspond with those of normal animals reared with males (589).

The developmental picture we have drawn of the rat finds its parallel in that other faithful laboratory rodent, the guinea pig. Puberty begins at about the same age in males and females, in this species between the thirtieth and fortieth days (33). As in the rat, physical maturation is more important for the emergence of mating patterns than association with animals of the opposite sex (373). One might at least expect the male to learn through experience to select suitable recipients for his attentions. It is doubtful, however, whether even the most experienced adults ever become very proficient in discriminating between receptive and nonreceptive females. Their courting technique is always largely trial and error.

Adult Mating Patterns: The Male.—With maturity a complicated mating syndrome appears, in which the male plays the more active part. In the rat, there occur pursuit and mounting,

palpation of the female's sides, and pelvic movements which culminate in intromission. The same sequence characterizes the sexual advance of the male guinea pig (372, 546). Comparing such behavior with mating in the lower vertebrates one can hardly fail to be impressed by the greater directness of the rodent. No colorful courtship ceremonies distinguish his love-making. Even the nibbling and smelling that frequently accompany sexual activity are not essential to its consummation. With the development of gestation and suckling mechanisms, baby tending no longer requires the cooperation of mother and father. Hence, there is no necessity for the formation of nuptial bonds or the courtship display on which they depend. When conditions are ripe, the rodent engages directly and without formality of any kind, in the important activity of procreating his kind.

Adult Mating Patterns : The Female.—As we shall see later on, the female of the species plays a more passive role than her mate (546). As we have already noted, her sexual activity follows a cycle of internal changes with recurrent periods of receptivity or heat preceding ovulation. Finding a correlation between changes in the genital organs and changes in the types of cells present in the vagina, early workers (369, 582) introduced the vaginal smear as an index of oestrous phase. So great is the variability between smear picture and behavior, however, that behavioral criteria have replaced the smear in studies of reproductive activities (282, 691). For the rat, Ball has developed a five-point scale of sexual excitability by means of which it is possible to grade oestrous responses (35). In this species heat recurs on an average of 4.5 days and lasts several hours each time (308, 369). While in this condition, the female becomes more active, darting about among the other animals or crouching in a characteristic posture. Frequently her ears quiver and, when mounted by a male, she arches her back so as to elevate the genital region.

In the guinea pig the oestrous cycle is nearly four times as

long due to prolonged action of progesterone (693). Although it is normal for females to mount one another at the peak of oestrus, true copulation is a male prerogative, the female remaining passive, with rigid posture and elevated genitals (546, 691). The oestrous reflex in both rat and guinea pig is nonspecific and, although normally elicited by the male, it readily occurs in response to any mechanical stimulus applied to the appropriate region. When the female is not in heat, needless to say, no stimulation, male or otherwise, can elicit the sexual response.

GLANDS REGULATING RODENT SEXUAL BEHAVIOR

The Male.—Our survey of mating among rodents reveals that, for the most part, sexual behavior is determined by internal changes. In the male, the predominance of endocrines is apparent from the perfection of the initial performance at puberty as well as from the induction of precocious puberty by male hormone injections (588). Moreover, the gradual decline of sexual vigor after castration also emphasizes the importance of internal regulators. The same downward trend has been found in rat (594), rabbit (593), and guinea pig (542). Nothing can stay its inexorable course except the administration of androgens. In this way alone can sexual impotence resulting from castration (426, 548, 570, 586) or other causes (585) be overcome. The weight of such evidence lays great stress upon hormonal factors in the sexual life of the rodent. As we have already pointed out, however, there is room for environmental influences in the selection of suitable sex objects. Furthermore as we have noted, under conditions of sexual hyperexcitability, the external stimulus apparently determines the form of expression.

The Female.—The female rodent seems to be even more dependent upon endocrine factors than the male. The sudden onset of oestrus at puberty and the equal suddenness with which heat reactions drop out after removal of the gonads are evidence in this direction. Moreover, the fact that such spayed animals

may be brought into artificial heat by ovarian extracts (36, 171) bears further witness to the importance of hormones in the female mating pattern. Moreover the oestrous rhythm though influenced by external factors, yields only superficially to them. In the absence of light, cycles in the guinea pig were found to proceed with the same regularity as before but without the usual nocturnal peak (172). In the rat, a 12-hour shift in oestrus has been brought about by reversing light and dark conditions (283). We have also achieved similar results with the guinea pig to our great convenience in experimenting (546). With the change in illumination in such cases there was an initial readjustment but no essential alteration in periodicity. Even when more radical changes in living conditions were introduced, involving disturbances in temperature, feeding and watering routine, and exercise, the greatest effect was a lengthening of the cycle in progress when the shift was made (98).

Summarizing the evidence at hand, we are led to the conclusion that the rodent mating pattern is more sensitive to internal regulators than to fine changes in external stimulation. In this respect the rodent may seem more primitive than the lower vertebrates we have discussed. His lack of discrimination, however, may be attributed to his burrowing habits. Spending much time underground, he is less dependent on eyes and ears than are birds, lizards, or even fishes. It does not mean that the rodent is less capable of profiting by experience. On the contrary, his more elaborately developed cortex would lead us to attribute greater learning capacity to this order. The role of learning in sex behavior becomes increasingly important as we turn to higher forms.

MEASURING SEXUAL BEHAVIOR

Spontaneous Activity.—It is comparatively easy to describe mating behavior, extremely difficult to measure its strength. Among the ingenious methods that have been used are the

revolving squirrel cages which record the animal's spontaneous activity. Applying this technique to groups of white rats, early investigators were able to establish a sex difference: not only was the average activity of the female greater than that of the male (294), but it showed cyclic peaks coinciding with oestrus, which were absent in males and immature females (563,640). In older females the interval between the peaks of activity was lengthened as menopause approached (564, 566). Surgical removal of the gonads resulted in a striking drop in general activity (301, 498), but in such cases cycles of activity could be artificially induced by estrogen injections (112, 282). Even male castrates treated with either ovarian grafts (641) or extracts (499) showed increased activity which in many cases simulated the normal oestrous rhythm. Recent experiments (482) have successfully increased the activity level in spayed females by androgen injections. In view of the lack of specificity of gonadal hormones which we have already noted this result is not surprising.

Though primarily dependent upon endocrine factors, spontaneous activity may also be influenced by the external situation. Male rats caged next to a female produced activity curves closely approaching that of the female even to the approximately synchronous oestruslike peaks. The female activity rhythm, on the other hand, is apparently more deeply embedded in the organism and not susceptible to social facilitation because the presence of one female had no effect on the activity of her next-door neighbor (564).

Obstruction Methods.—Although drum running reflects sexual drive, it is only an indirect index. To measure the strength of drive, it is necessary to see if the subject will overcome an obstruction in order to reach a member of the opposite sex. For use in motivation studies of the white rat, a special box was devised by Warden and his coworkers at Columbia University (642). A subject was made to undergo a shock by crossing an electrified grid before he was allowed contact with the incentive animal.

Strength of sexual drive was measured by the number of crossings, contacts, and approaches to the grid within a given time interval. Using this technique, it was found that among females (643) the performance apparently depended upon oestrous phase. As in the rotation wheel, animals in oestrus were more active in the obstruction box, crossing on the average more than ten times as often as those in any other condition. In contrast with the cyclic behavior of the female, that of the male reached a peak 24 hours after sexual satisfaction and showed little change thereafter. Another interesting sex difference was that the female in heat crossed more often even when there was no male to entice her than would a nonoestrous female to a male incentive. A male rat, at the height of sexual activity, on the other hand, would cross less often to an empty compartment than would a male at any other time, to a receptive female. These findings suggested that sexual drive, like spontaneous activity, was more dependent on internal organic condition in the female; more susceptible to external stimuli in the male.

Further light is thrown on this difference by the fact that segregation with other females for as long as 35 days failed to decrease the drive of the female in oestrus, although after an equal amount of segregation there was a diminution in the male drive (312).

As might be expected, impotent compared with potent males showed a marked inferiority in obstruction-box performance (597). In the same direction are losses in sexual drive following removal of the gonads. Such deficiencies were overcome in females by injection of ovarian hormones, but replacement has been unsuccessfully attempted in the case of male rats (444, 588).

Again the guinea pig enriches our store of information concerning rodent behavior. In our experimental studies of this form, we introduced a hurdle which the animal had to scale in order to reach the incentive. This type of barrier seemed well

adapted to the guinea pig. It was sufficiently outside of his usual repertory of responses to constitute a psychological as well as a physical hurdle, while at the same time it was not so startling as to freeze him. Using a device involving this form of obstruction, we compared groups of male and female guinea pigs, under conditions of presumably maximum sexual tension. In contrast with the rat, a definite sex difference in behavior was revealed: males showing an active drive which apparently had no counterpart among the females (546). This is all the more surprising in view of the very active homosexual mounting behavior which has been reported for females at the peak of oestrus (692) and abundantly confirmed in our own observations. Whatever of an impulsive character there may be in the females' sexual needs, it is apparently not sufficiently intense to overcome a barrier easily hurdled by the sexually deprived male. The male, however, displays a strong and dependable drive to reach a female although he is reluctant to surmount the obstruction if the incentive chamber is empty (538).

As in the male rat, castration was followed by a gradual decline in crossings accompanied by a reduction in attempts to copulate and in ejaculations. Although hormonal replacement failed in the rat, it was successfully accomplished in the guinea pig (542).

Direct Measures.—Sexual drive may be indirectly expressed in drum running or in overcoming obstructions in the way of a sex object. The question still remains as to how closely such behavior correlates with sexual drive directly expressed in mating. In a number of recent studies on male rats (23, 24, 596, 600) statistical relationships have been worked out for various measures of sexual behavior. Fair correlations have been obtained between copulatory scores and obstruction-box performance: considerably lower figures between copulatory scores and activity in rotation cages. The results at hand offer little ground for prediction from one measure to another. Among tests of copulatory behavior, however, a respectably high degree

of consistency exists (21, 589, 599) which may serve as a potency index in investigations of individual differences.

For the female, corresponding individual consistency has been reported for the guinea pig, in the duration and character of oestrus (692). Although not worked out so fully for the rat, similar relationships presumably hold (95).

Comparative Strength of Sexual Motivation.—We have considered various aspects of sexual life among rodents. In closing, we may inquire as to where sex belongs in the rodent's system of values. Since individual survival does not depend upon it, we should hardly expect it to rank ahead of hunger or thirst. In an early experiment (626) in which male rats were offered a free choice between food and a receptive female, a preference for food over the female was expressed in 77 per cent of the cases. This ingenious free-choice method has recently been improved so as to permit a study of shifts in preference from trial to trial. Even with more potent males, the earlier findings were corroborated to the extent that most males chose food more often than the female. There were, however, very wide individual variations in the number of each choice from animal to animal and from day to day. Moreover, during the ten trials within a given day, vacillating behavior was common and the preference gradually shifted from food to female, as indicated in Table 1 adapted from Stone and Ferguson (598, p. 248). Although food dom-

TABLE 1.—PERCENTAGE OF TOTAL NUMBER OF SUBJECTS MAKING A GIVEN CHOICE

Trials	Food	Female
1- 5	75.8	24.2
6-10	47.3	52.7

inated sex at the beginning of each day's trials, shifts would occur in the more potent rats after they had consumed a few grains of food. As in the well-known alternations of antagonistic reflexes,

retinal rivalry, and the fluctuations of ambiguous figures, a conflict between strong biological drives is apparently resolved in a similar way.

The most ambitious attempt to work out a hierarchy of drives was based on the results of the obstruction box in the white rat. Table 2 summarizes the findings obtained under different condi-

TABLE 2.—RELATIVE STRENGTH OF DRIVES

Drive Tested	Average Number of Crossings
Maternal.....	22.4
Thirst.....	20.4
Hunger.....	18.2
Sex.....	13.8
Exploratory.....	6.0
No incentive.....	3.5

tions of motivation (342, p. 26). We are at once surprised to find the maternal drive at the head of the list. We may, however, regard this result as somewhat spurious. As we shall see in our discussion of maternal behavior, the mother was run to the litter in the home cage rather than to the litter alone. This actually provided a double incentive since she was motivated to get home as well as to reach her young. Consequently the results may indicate a summation effect, unduly elevating the maternal in the tabulated hierarchy.

On the basis of these results we may conclude that in comparison with the other drives, sex enjoys a secure though not primary place in the rodent's repertory of activities. It may be depended on to function without benefit of social training and yet may share with the exploratory drive a certain susceptibility to external influences which, though weak in the rodent, forecasts the important role society is to play in the mating activities of higher forms.

CHAPTER V

MATERNAL CARE IN THE LOWER MAMMALS

We have already pointed out that the increased capacity for learning as we ascend the evolutionary scale means increased susceptibility to outside influences. The earliest social forces that have an opportunity to act upon the developing individual are found in the primary family group. In mammals, with the prolongation of infantile helplessness and parasitic dependence upon the mother, these early associations become very close. Through them the new individual is introduced to the life of the group. At the lowest levels, the family consists only of mother and litter mates. The father does not enter the social picture until later.

A POUCHLESS OPOSSUM

We are fortunate in having observations available on a very primitive mammal, the marsupial opossum. Many years ago, a similarity was noted between the recurrent oestrous cycles of the opossum on the one hand, and the rat, guinea pig, and mouse, on the other (274). Maternal behavior has also been reported for the opossum (69, 272). The young *Marmosa* are born in an extremely immature state. Hairless, blind, and apparently deaf, they cling to their pouchless mother by means of foot and mouth-grasping reflexes, as Figure 8 illustrates (69, p. 316). An embryo of only $12\frac{1}{2}$ days can find the nipple in the mother's pouch by a trial-and-error process involving successive contacts of the muzzle. The young marsupial in both pouched and pouchless species is carried about for some time on the mother's nipples and may even be dragged in this way after

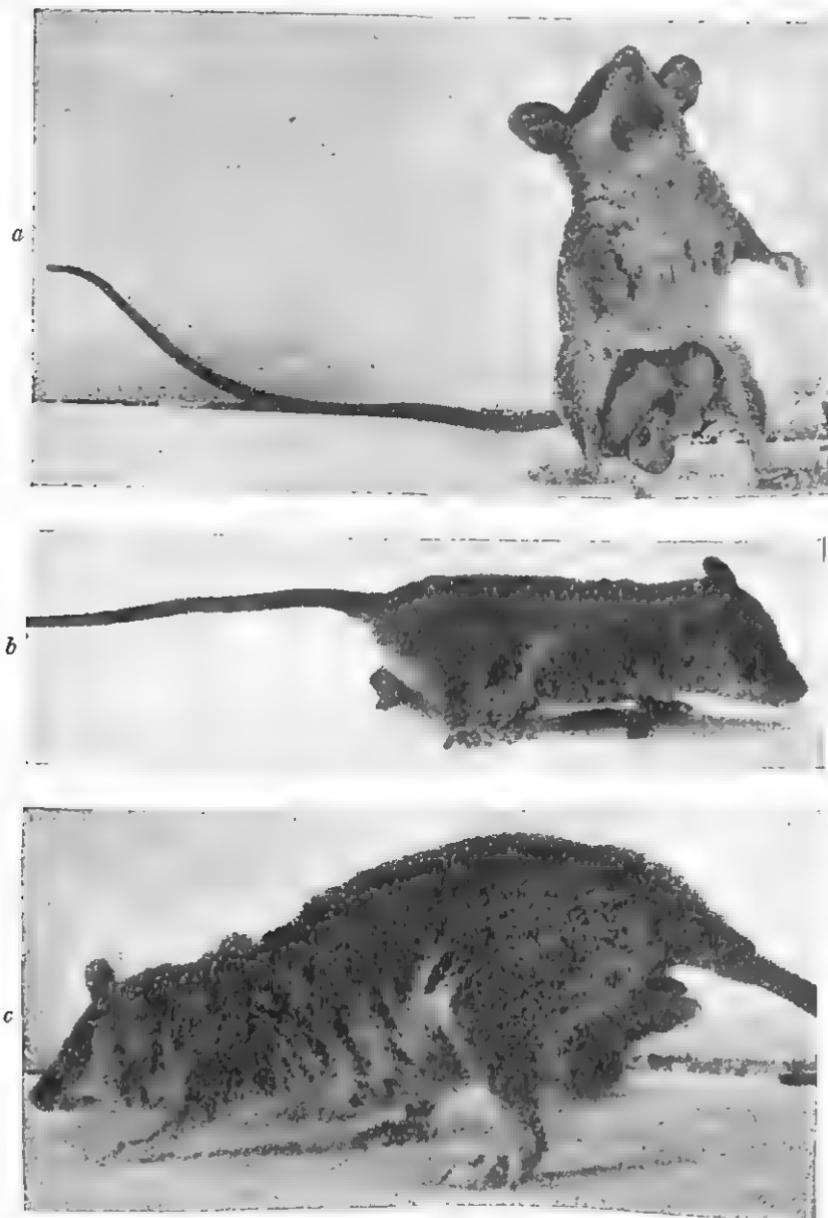


FIG. 8.—A pouchless opossum with young. *a*. Female *Marmosa cinerea* with young—standing defense posture. *b*. Juvenile *Marmosa cinerea*. *c*. Lactating female, walking posture. (Courtesy of F. A. Beach, *Maternal behavior of the pouchless marsupial, Marmosa cinerea*, J. Mammal., 1939, 20, p. 316.)

attaining a considerable size. In an experimental situation, when separated from her, they squeaked until reunited. Even after weaning, they frequently ran to her at the observer's approach, apparently seeking protection.

Nest Building.—As in the lower vertebrates, the mother provided shelter for her young by building a nest. In the field, the opossum nests in the branches of trees, often inhabiting disused birds' nests. In the laboratory, the mother availed herself of strips of paper toweling which had been scattered about the observation cage. She collected all the material presented, carrying it to the nest box either in her mouth or by grasping it with her prehensile tail.

Retrieving.—The mother *Marmosa* expressed her maternal attitude by gathering her young about her and making sure that they were in a favorable position for sucking. Tests were made in which the young were detached from the female and scattered about the cage. As soon as the mother was given access to them, she diligently set about retrieving them. After nosing the baby, her technique consisted in pushing it backward under her belly with snout and forepaws. In the course of an 11-minutes trial the mother had discovered all the scattered young and had reattached them to her body. In two other retrieving tests, two new-born rats which were larger than the young opossums were included with the latter. The mother's reactions to the strangers were indistinguishable from her responses to her own young, but since the rats failed to seize their foster-mother's coat, they could not be retrieved. As we shall presently see, the mother rat carries her babies with her teeth to the nest site.

NEST BUILDING, RETRIEVING, AND SUCKLING IN RAT AND MOUSE

Nest Building.—The most extensive work on maternal behavior in the lower mammals has been done on that most patient of all laboratory animals, the white rat. Like many of the forms we have considered, the rat builds nests. Her nest construction is

not limited, however, to housing the young but plays an important part in the regulation of temperature. It appears in individuals of both sexes at various times throughout life. In males it occurs irregularly under conditions of lowered temperature. In normal females there are rhythmic variations which exactly reverse the drum-running cycle, the peak of specific nest building coinciding with the dioestrous dip of general activity (328). Moreover, during pregnancy and lactation, when general activity is at lowest ebb, nest building reaches its maximum, far exceeding the level attained at other times. The relationships are shown in Figure 9. The accentuation of nesting in mothers occurs

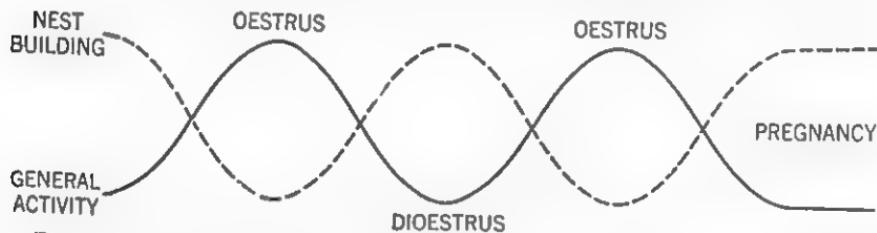


FIG. 9.—Scheme indicating inverse cyclic variations of nest building and general activity in the white rat. (Suggested by findings of E. F. Kinder, *A study of the nest building activity of the albino rat, J. Exp. Zool.*, 1927, 47, 117-161.)

regardless of external temperature. The nesting responses are readily elicited for several weeks until the young begin to leave the nests. This behavior is adaptable to gross alterations in the external situation. Nests are built more loosely when it is warm; they are transferred or reconstructed when air currents or heat is turned on them, and the expression of preferences for certain materials can be elicited in an experimental choice situation. Under normal circumstances, however, nest building is a rather stereotyped performance, presumably representing an internal drive little influenced by social factors (565, 655). The female, motivated to build a nest, goes about her task mechanically, gathering up all available material in the cage and taking care to include her own tail (603).

Once constructed, the nest is defended by most strains of rats.

Intrusions are resented and the intruder is viciously attacked. Such behavior may be modified under laboratory conditions so that the experimenter is tolerated.

Retrieving.—When rat pups stray from their nest, the mother retrieves them. Unlike the opossum, she grasps her baby in her mouth, seizing it by any conveniently exposed portion, car-

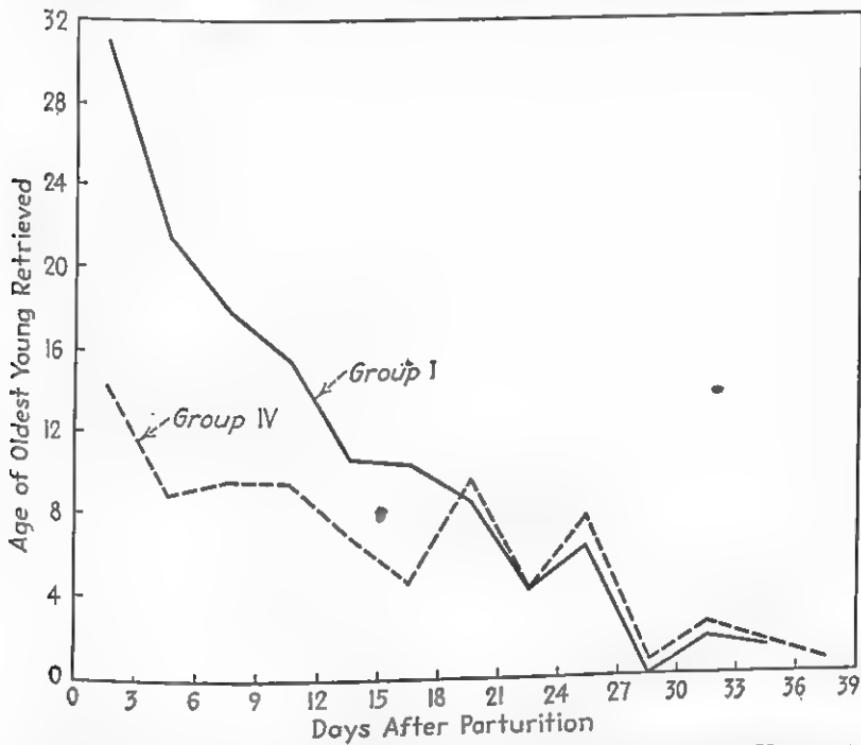


FIG. 10.—Waning of retrieving activity in the white rat. Group I, Youngest pups offered first; Group IV, order reversed. (Courtesy of B. P. Wiesner, and N. M. Sheard, *Maternal behaviour in the rat*, London: Oliver and Boyd, 1933, p. 96.)

ries it to the nest, where she deposits it, and then returns for the next (137). This behavior is not unlike the transportation of nesting materials (495) or the hoarding of food (306, 655). The natural propensity of the rat to bear burdens may be the common core of such activities, the specific form depending on the specific situation. The retrieving of young usually makes its initial

appearance when the first litter is cast. It has been found to occur spontaneously in some virgin rats and has been induced in many by caging them with young. Further facilitation of this tendency results from injections of gonadotrophic hormones of the anterior pituitary. When first attempted, the act is performed awkwardly but improves with practice. Shortly after the birth of young, when retrieving activity is at its height, the mother reacts quite indiscriminately, including young mice, rabbits, and kittens as well as young of her own species (270, 655). She will prefer a baby rabbit to a much smaller but older rat. Her responses are probably determined by some specific property of babyishness, shared by these assorted species. Even this criterion may be abandoned in the full flush of retrieving zeal. In some rare instances in which a second litter had been delivered before the mother had ceased to retrieve the young of the first, she was seen carrying not only the newborn but dragging along the big young of the earlier litter and even her own mate, which was heavier than she. Within a few days, however, her ardor had cooled to the point where her activities were confined to the new babies. Sometimes the drive to retrieve is so impelling that a mother rat will steal the young of another (173). Gradually, during the course of nursing, the intensity of retrieving wanes, as indicated by Figure 10 (655, p. 96).

Suckling.—The biological goal of maternal care is obviously suckling the young. In the rat, the mother permits the offspring to nurse but does not take an active part in the process. Most of the activity is displayed by the young ones, which crawl underneath the mother's body apparently in an attempt to keep warm. While in this location, searching movements of the head lead them to the nipples. The main task of the mother is to sit still and keep from squashing the pups. Normally the lactation period lasts about 21 days, during which time nursing behavior gradually decreases. By replacing the original litter with a younger one, however, it has been possible to prolong

suckling far beyond the normal limits—indeed, even beyond the limits of lactation, which were themselves extended by the continued suckling. In one group, six animals were still maternal in behavior at 260 to 297 days *post partum* (655).

Lure of the Litter.—In view of the importance of maternal behavior in the life of individual and species, a number of investigations have sought an objective measure of it. As in sexual drive, obstruction methods have been found useful. One form of obstruction is a maze which the mother must learn in order to reach her litter. In one experiment (556) a tempting dish of bread and milk proved to have greater incentive value than the litter. Direct preference tests, however, failed to bear out these findings. Although bread was preferred to young before parturition, the preference was reversed after the birth of the litter (655). If hunger becomes disproportionately stronger than maternal drive, a mother rat may eat her own babies. Cannibalism is a fairly common observation of those working with rats. It has also been noted in the closely related mouse. In one case, after 20 hours' food deprivation, the mother refused to retrieve young any longer and, some hours later, ate two of the five in her litter. On presenting her with the remaining three, however, this wayward mother transported them as usual. Apparently the maternal drive again predominated (495).

We have already noted the comparative superiority of the maternal drive in the Columbia University studies and pointed out the difficulty in interpreting the results. Since the incentive chamber which contained the litter was also home, the motivation was ambiguous. In cases where parturition had occurred in the living cage instead of in the incentive chamber of the obstruction box, the drive was reduced. Although this was attributed to a failure of the mother to recognize her young in the strange setting, it may simply have represented the residual maternal drive remaining after elimination of the territorial component. Maternal drive as expressed in the obstruction box decreased in

intensity with the lapse of time *post partum* and was cut in half within five to seven days. A still further decrease in the incentive value of the litter appeared if the mother was separated from it for several hours before the trial, possibly because of the setting up of other habits in the interim (443). In evaluating maternal motivation, it is especially noteworthy that the specific urge to reach the litter, like nest building, was at its peak during the period when spontaneous general activity was at low ebb.

This brief survey has revealed in the rat a complex pattern of maternal behavior which, though largely on an instinctive level and little affected by social conditioning, plays an important part in the life economy.

Although there are fewer experimental studies of maternal behavior in the mouse, the available material suggests a close resemblance to that of the rat. In a series of exploratory experiments, Rey has presented many interesting observations on this species (495). Wide individual differences in maternalism have been observed. The response to the first litter is relatively weak but improves with reproductive experience. To what extent the improvement is due to practice and to what extent it represents a perfecting of physiological mechanism is a nice question whose answer awaits further experimentation.

In the mouse, nest building and retrieving appear as prominent features of the maternal pattern. As in the lower vertebrates, familiarity is important, and the original nest is apparently very attractive to the mother. In one experiment, when the young were placed in a newly constructed nest, the mother promptly transported them back to the old; when they were placed in a nest constructed out of material from the old, the mother seemed to be undecided at first, finally compromising by returning some of her litter to the old and leaving the others in the new nest.

In the mouse as in the rat, maternal behavior, although most easily aroused in lactating females, is not limited to mothers but may be induced in virgin females and in males by caging them

with young for short periods of time. That such behavior is not hormonally conditioned is shown by its appearance in animals whose gonads and pituitaries have been removed (355, 356, 357). Thus the mouse shows more susceptibility to outside influences than the rat.

MATERNAL-FILIAL BEHAVIOR IN THE GUINEA PIG

Maternal Care.—The guinea pig affords an interesting contrast to both opossum and rat in maternal-filial relationships. A Minerva among animals, the guinea pig springs full-grown into the world. After a gestation period more than three times that of the rat (33, 308) and even longer in proportion to that of the opossum, it is not surprising that at birth its brain development and correlated adjustive capacity are far in advance of either of these forms (614). It has a full coat of fur, remarkable agility, and a readiness to cope with solid food. This infantile precocity obviously reduces the need for maternal care. There are no embellishments in the form of nest construction or retrieving in this species. Even the sucking, though continuing for about the same interval as in the rat, is not so vital because of the early addition of solid foods. The role of the mother consists mainly of licking off the fetal membranes in the newborn and assuming a crouching position as they nurse (33, 545). The simplicity of maternal behavior is revealed in the following unpublished notes on the birth of a baby guinea pig:¹

- 12:55 P.M. E. noticed R-160 hunching over, licking one baby. Tried to remove mother; still attached by cord. Mother eats cord in course of licking. Baby squeaks at intervals.
1:00 P.M. Baby nosing mother's hind leg. Mother stepping on baby. Baby noses toward nipple.
1:05 P.M. Baby under leg again.
1:07 P.M. E. took both out on lap. Put baby to nipple. No response.

Strength of Drive.—In a pioneer study of maternal drive (15) a mother guinea pig, two hours after parturition, was placed in a

¹ Observations by Seward and Seward.

wire box with her litter in plain sight. Even under such tantalizing circumstances, however, she paid no attention to her babies and "only in rare cases did any mother gnaw and attempt to reach her young family, even though the little ones had been away from her for an hour or more" (15, p. 307).

In our own recent work (545) we attempted to explore the field, investigating the various factors involved in maternal behavior. Using the hurdle box described in the previous chapter the mother was placed in one end with her litter in the other and timed until she nosed the door of the incentive compartment. During the course of the normal three-week lactation period, most of the guinea pigs, like the mother rats previously studied, showed a gradual weakening of the drive to reach their litters. Their increasing reluctance to cross was indicated in these experiments by the increased time required to jump the hurdle separating them from their young. The only exception was a mother whose behavior toward her offspring in the maternity cage was so abnormal that we regarded her as a case of "puerperal insanity." Unlike the rat, maternal interest could not be revived by exchanging young litters for old. In spite of all change in external circumstance, it followed an inevitable decline. In the guinea pig, the weight of the evidence thus points even more forcibly than in the case of the rat to the predominant importance of hormonal factors in maternal behavior.

Filial Behavior.—In spite of the rather casual attitude of the mother guinea pig toward her young, she apparently plays a very important part in their lives. In the course of our study of maternal behavior we were impressed with the greater intensity of drive which the young displayed toward their mothers (537). The guinea pig's early independence of the mother as a source of nourishment afforded an opportunity of disentangling hunger from the total pattern of filial devotion. Running babies to mothers in the hurdle box, we found that although hunger was an important factor in this drive, even in its absence

the suckling guinea pig was motivated to seek its mother. The parallelism of the data in Table 3 obtained under fed and unfed conditions suggested the operation of some factor other than hunger throughout the same period of lactation (537).

TABLE 3.—COMPARISON OF UNFED WITH FED CONDITION

Animal	Number of crossings			
	Unfed condition		Fed condition	
	Empty	Mother	Empty	Mother
SC29.....	4.7	22.0	2.3	17.0
SC31.....	5.7	22.7	6.0	22.6
SC33.....	5.7	19.3	3.3	15.5
SC35.....	6.7	26.2	1.3	19.2
SC32.....	3.0	16.3	1.3	22.2
SC34.....	4.7	17.8	0.7	5.7
SC24.....	2.0	17.8	0.7	10.5
SC26.....	1.7	12.0	2.5	8.0
Average.....	4.3	19.3	2.3	15.1
Average Difference.....		15.0		12.8
Critical Ratio.....		14.42		6.27
Probability.....		0.01—		0.01—

As in the rat, this may well be a need for warmth. It is all the more likely in the guinea pig since the litters are too small for the members to keep one another warm. It is the mother who must protect her young family from the cold through the warmth her large furry body radiates as well as through the fat-rich milk she feeds them (492). By the time the pups become altogether independent of mother's milk, they are also large enough to depend on their own temperature-regulating mechanisms. Thus it would seem that the needs for food and warmth are simultaneously present. Moreover, the greater strength of the mother in comparison with the empty compartment as incentive

suggest that these needs are specifically dependent upon the mother for their direction.

Perhaps the most interesting finding was the fact that the young guinea pigs continued to seek their mothers throughout the observation period, even though they were suckled less and less often. We may assume that, through the mother's ministrations to their biological needs, the babies became conditioned to her so that even after nursing had ceased and they no longer needed to snuggle beneath her for warmth, there was some tendency for them to cross the hurdle just to sit beside her. In other words, the mother had become a value in her own right. May we consider this the dawn of primary in-group control?

BASIC FACTORS IN RODENT FAMILY LIFE

Maternal behavior, like mating, depends upon the central nervous system. The brain is essential for the proper organization of this complex pattern. As we have noted, it is well established for the rat that failures of maternal behavior in one or more respects increase with increasing destruction of the cortex (72, 587). Instinctive mechanisms may be brought into action either by internal chemical stimuli or by external stimulus patterns. Present evidence indicates species differences in balance between the two sets of factors. We have just noted the importance of hormones in the maternal activities of the guinea pig and the rat. Of the two forms, the rat is somewhat more amenable to external influences. In the rat, maternal behavior has sometimes been reported in normal males and virgin females (389, 655) when caged with young. Usually, though not invariably, such cases follow sensitization by pituitary hormones. In the mouse, we found evidence of even greater independence of endocrine factors. We may conclude that, in the rodent, reproductive activities are not exclusively dependent upon internal conditions but, under certain circumstances, may be externally motivated.

CHAPTER VI

CONJUGAL RELATIONS IN MONKEYS AND APES

From white rat to monkey is a steep climb, but the very distance that separates them brings into sharp relief contrasts and similarities that might otherwise be overlooked. The tremendous advance in brain development has meant a tremendous advance in educability and a corresponding sacrifice in ready-made instinctive modes of adjustment. The vastly prolonged period of social dependence which this change entailed has resulted in firmer family ties and has helped to bind different families more closely together in the life of the social group. At this almost human level we see the first glimmerings of culture. Although the changes may be striking, we should never lose sight of the fact that from lowest vertebrate to man they are merely differences in degree. There is continuity throughout although it is increasingly difficult to recognize as the cultural superstructure increases in complexity.

GENETIC STUDIES OF SEX

"Infantile Sexuality."—A behavioral change which attracts our attention at the primate level is the extensive repertory of sexual activities which are included in the social play of juvenile animals (700). This is not new in the course of evolution. It has been especially noted among birds. Armstrong has observed month-old thrushes in coital attitudes, young red oven birds singing in their nests, and a 21-day-old dove brooding its mother's egg (32). Among monkeys and apes the premature occurrence of reproductive items forms part of the common stock of play behavior in childhood. Even a young monkey reared in isolation,

which at first showed little in the way of explicit sexual behavior, soon learned from his fellows when allowed normal social contacts (208, 209). In infant chimpanzees various expressions of social excitement, such as romping, teasing, fleeing, fighting, petting, licking, and others were frequently forerunners of sexual response (91). It is not until puberty that they acquire reproductive significance. Their lack of specificity during childhood makes them susceptible to conditioning in various ways so that the emerging adult pattern may show wide variability. The presexual play of primate childhood, however, is extremely diffuse and may be conditioned in a variety of ways.

Inadequate Stimuli.—For stimuli we must look beyond the range of the biologically adequate. Inanimate objects, e.g., fruit, sticks, and bottles, have served autosexual purposes when normal social outlets were barred. Sometimes members of other species are sought in sociosexual play. Advances to snakes, cats, dogs, foxes, and human beings have been recorded on the part of primates. Yerkes describes a young gorilla, Congo, which displayed sexual interest in a dog (683, pp. 520-521):

. . . pulling the animal toward her, she turned him on his back and, stepping astride, assumed a male copulatory position and executed appropriate movements. This persisted for a few seconds, when stepping from above the dog, she threw herself on her back and drew him for a few seconds in what had every appearance of sex embrace.

Within a given species, homosexual behavior plays a prominent part in the young primate's repertory before either dominance or adult sexual status has become established. As in the lower organisms, mounting, or male sex behavior, is often correlated with high dominance and may be displayed by individuals of either sex. To what extent such behavior represents *sex drive* and to what extent *social dominance* cannot be determined without careful analysis of each situation.

Nonvalid Responses.—Since behavior that is operationally sexual may be otherwise motivated, from a reproductive stand-

point we are justified in speaking of nonvalid responses as well as inadequate stimuli. Because of its early general social rather than specific reproductive significance, sexual behavior is often used in the service of nonsexual drives. In primate societies based on dominance, an animal may assume the female sexual position to indicate its subordinate status in the presence of a social superior. By presenting sexually, the weaker animal frequently secures food or escapes an impending attack. In other cases sexual behavior has been used to initiate an attack by inveigling an enemy into closer contact. Furthermore, in frustrating situations, sexual responses frequently occur as a substitute for more effective activity. Such perverted sexual responses serve ulterior nonsexual ends in cases where other behavior is precluded by the social situation (91, 260, 323, 617, 700). They make their appearance in youth but are carried over to maturity and used as occasion demands (398, 399, 401).

Adult Mating Patterns.—The advent of puberty with its upsurge of hormones and accession of vigor is of great importance in welding the playful and perverted sexual activities into a dynamic pattern with reproductive significance. Physiology alone, however, is not solely responsible but must be supplemented by experience if normal adult sexual relations are to be achieved. In the chimpanzee, initial copulatory attempts frequently end in failure. The male novice behaves in the playful and puzzled manner of the immature animal and requires a period of trial and error for smooth motor performance. When fully developed, the two sexes display reciprocal mating behavior: the male makes a direct approach, imposing his will at times by physical force, while the female uses indirect techniques involving cajoling, petting, and allure (678).

In summary we may point out that the development of primate sexual functions, like the development of other functions, proceeds from general to specific. At first, sexual behavior

appears as one of many forms of social adjustment, occurring in a wide variety of nonsexual situations. Gradually, as the combined result of physiological and experiential factors, the sexual responses become integrated into a pattern precisely adapted to the reproduction of the species.

THE QUESTION OF PRIMATE OESTRUS

Monkeys.—We have noted that mating in the rodent is restricted to recurrent periods of oestrus. Copulation outside of these periods is unknown. The only evidence of modification resulting from external conditions may be found in the cases of oestrous rats which gave more intense responses to the more aggressive males (35). No amount of male aggression, however, will lead to mating when the female is physiologically unprepared for it. Monkeys and apes, on the other hand, can copulate at any time during the female's cycle. This does not mean the lack of a true oestrus in such forms but merely suggests the operation of social factors in addition to biological ones. Recurrent periods of increased sexual activity have been reported from lemur (374) to man (169). Anatomical cycles were early revealed in Macaque monkeys of the Old World by vaginal smears as well as by changes in color and texture of the genital skin (152, 154, 273, 653). There is also evidence of a correlated behavioral cycle, with increased sexual activity before, followed by a decrease after, ovulation (38, 40, 42).

The most significant data on sexual periodicity in the monkey have recently been gathered in an extensive field study of a species of macaque (133, 134). Under free-ranging conditions, oestrus is apparently much more clearly revealed than was indicated by previous observations in captivity. Freed from the confinement of the laboratory, the animals may give more spontaneous expression to sexual drive. With plenty of space in which to roam, dominance-subordination relationships are less often elicited and consequently less often motivate sexual

behavior. Such social influences as dominance, personal attachments, and habit are not ruled out in the wild, but sexual behavior may be taken at face value to a greater extent than in captivity. Under free-ranging conditions, the female during heat was found to leave her normal subgroup and to approach the males despite frequent attack. Assuming a crouching posture, she solicited the males until one or more responded and mating ensued. She remained in close association with her sexual companions for several days, during which grooming was persistent and copulation frequent. Following oestrus, the female again became part of the cluster of females and young. The occasional matings outside of oestrus did not involve close consort associations and may have represented either the beginning or ending of receptivity, or nonsexual motivation.

An oestrous cycle has also been established for another Old World monkey, the baboon. Vaginal smear phases have been found in these forms (235), but more striking is their periodic sexual skin swelling (699). The enlargement begins at the end of menstruation, reaches a climax at the time of ovulation, and thereafter subsides (671, 701). Males prefer females in this condition, even permitting them to take a little food at such times without the punishment that would ordinarily be inflicted for their presumptuousness. Females in turn are most responsive during their swelling phase, remaining close to their mates and frequently soliciting them. The female with the greatest swelling becomes the chief wife pro tem. When the sexual skin is quiescent, mating seldom occurs in any species, and in certain ones is never permitted (231).

Monkeys of the New World exhibit oestrous phenomena essentially similar to, though more primitive than, those of Old World species (130, 131, 241, 268, 375). Sexual behavior in the howling monkey, for example, is largely restricted to recurrent periods of oestrus, but it may occur sporadically at other times. Like the macaque, the oestrous female may copulate with several males,

and after mating she tends to remain in close association with the male for several hours or more.

Castration-replacement experiments have demonstrated the dependence of oestrous phenomena in the monkey on physiological mechanisms (41). Owing to the increased susceptibility of the primate to social influences, however, the behavioral manifestations do not coincide so closely with the physiological state as in the lower mammals and often mask the underlying biological cycle.

Apes.—Among the higher primates there is even greater discrepancy between ovarian events and mating behavior. In the protoanthropoid gibbon, for example, a clearly defined menstrual cycle has been reported (129, 136), but copulation is apparently less restricted to the follicular phase than in the monkey.

A menstrual cycle, with phases marked by changes in vaginal smears, has also been determined for the gorilla but we have no information concerning behavioral correlates (445).

The chimpanzee has supplied us more generously than any other ape with evidence on this point. Cyclic variations have been observed which are homologous with those reported for other primates (187, 206, 686, 695). In the case of one animal on which a long time study was conducted, these swelling periods determined and limited sexual receptivity (619). Other cases are on record, on the other hand, in which copulation did not seem to be markedly influenced by oestrus. The famous Johns Hopkins pair, Dayton and Evo, mated without reference to the female's cycle (529). Such cases originally cast much doubt on chimpanzee oestrus and led to confusion in interpreting conflicting observations. Current evidence, however, points as definitely to biological oestrus for this manlike ape as for the lowly monkey (684, 685). In an extensive series of observations, including several hundred matings under controlled conditions, Yerkes found that congenial, experienced pairs were likely to restrict their sexual activities to the period of swelling. Table 4, based

on ratings of sexual responsiveness, indicates a close relationship between mating behavior and swelling phase (680, p. 95).

TABLE 4.—AVERAGE RATINGS FOR 233 EXPERIMENTAL MATINGS

Measure	Cycle phases					
	Menstrual	Post-menstrual	Tumescent	Maximum swelling	Detumescence	Premenstrual
Receptivity of F	0	0	1.88	3.01	0.74	0
Desire of M.	0.44	0.17	2.82	3.54	1.91	0.48
Acceptance of F.	0	0.03	2.29	3.18	0.91	0
Acceptance of M.	0	0.03	1.82	2.63	0.61	0
Frequency of copulations. .	0	0	21	65	3	0
Number of observations. . .	9	30	34	89	23	48

In cases where the consorts were unfavorably mated, the female, disregarding her menstrual phase, might tactfully offer herself to the male as a gesture of placation, in a manner comparable with the prostitution behavior of monkeys. Thus again we find social factors complicating the picture by inducing mating at biologically inappropriate times. Confirmation of Yerkes's findings may be found in Young and Orbison's (694) recent investigation of the relationship between sexual status and behavior. In eight female chimpanzees intensively studied they found a well-defined period of sexual responsiveness during the follicular phase of the menstrual cycle. It was not apparent after removing the ovaries. There was no sign of a premenstrual increase in affective behavior or of a menstrual depression. In fact there were no distinctive behavior changes during the flow. The chimpanzee showed fewer cyclic behavioral fluctuations than the monkey but more than women. Moreover, at the chimpanzee level, individual differences appeared to be more important than menstrual phase as determiners of heterosexual behavior. This represents a marked shift in balance in favor of social

determination, in comparison with the situation in lower mammals where differences between individuals play a much less conspicuous part. The final step is taken by man whose range of individual differences is so wide that it effectively masks any cyclic effects as well as differences attributable to sex membership.

SEX AND DOMINANCE

A Two-factor Theory of Sexual Behavior.—As in the lower organisms, the interpretation of sexual behavior is made difficult because of its relationship to dominance. In primate societies

TABLE 5.—OCCURRENCE OF BEHAVIOR IN THE DOMINANT ANIMAL

Behavior item	Percentage of total occurrences	
	Experiment I	Experiment II
Food getting.....	97	80
Bullying.....	99	99.9
Initiation of fighting.....	85	97
Dorsal ventral mounting.....	98	89
Presentation.....	43	27
Flight.....	1	0
Passivity under aggression.....	1	10
Cringing.....	0	0

where dominance is the chief means of social control, the externalized sexual behavior that we have encountered in genetic development is often used as a power weapon rather than as an expression of sexual tensions. On the basis of experimental work on a variety of primates, Maslow (398, 399, 400, 401) has been able to clear up many confusions resulting from the dual motivation of sexual behavior. Observations in a competitive food situation revealed a basic dominance drive which seemed to determine the satisfaction of bodily needs by utilizing the specific biological drives of feeding, mating, and aggression as channels of expression. Table 5 presenting the results of two studies on pairs of macaques shows the types of behavior most closely cor-

related with dominance (400, p. 182). Noting especially the sex-dominant behavior, the table emphasizes dorsoventral or male mounting. The dominant animal in a pair did 98 per cent of the mounting regardless of its sex. In natural groups made up of both sexes, the dominance role usually falls to the male because of his superior size and strength and, as a consequence, we think of dorsoventral mounting as characteristically masculine. Its correlation with dominance may help to explain the homosexual behavior frequently observed in immature animals. Later, when the sex drive has become more specific, heterosexual behavior naturally predominates. Homosexual approaches remain restricted for the most part to the expression of dominance.

Returning to the table, we should note that sexual presentation is less characteristic of the dominant than of the subordinate member of a pair. This would support the interpretation of prostitution behavior as an admission of social inferiority and a supplication to the more powerful for favors.

In chimpanzees observed in a noncompetitive situation, neither sexual presentation nor mounting behavior indicated dominance status. Grooming was the only form of social behavior that was a reliable accompaniment of dominance (156).

Oestrus and Social Status.—One further point which Maslow's studies have brought out is the periodic change in social relationship with oestrus. At this time a female that normally enjoyed high dominance assumed a subordinate role. In cases where it was usual for a female to dominate a male, oestrus caused a reversal in relative status. Somewhat different findings were reported for free-ranging rhesus monkeys. Under these conditions males are at all times completely dominant over females. During oestrus a female's status actually *rises* within her own sex group. This makes it difficult for the male to maintain his superiority, and he may have to use force to bring the female to submission. At the same time he shows more *tolerance* for the female, admitting her to closer association than normally and

allowing her to feed with him from small food trays. The female seems to gain this increased tolerance both by copulating with the male and by the mutual grooming which she seems to invite during the period of sexual skin activity (133).

To Yerkes we are indebted for comparable information on the chimpanzee. In the study to which we referred above, ratings on dominance as well as on sexual behavior were determined. They revealed a general tendency for the male to lead and control and for the female to follow and assume a subordinate role. It is this male aggression which is responsible for the atypical copulations occurring outside of oestrus. To the command of a strange, unfriendly, dominant male, the more timid female may acquiesce regardless of sexual phase or preference. Other experiments were specifically designed to determine the effect of oestrus on dominance status (157, 679, 681, 682). Following a technique introduced by Maslow, food tidbits were offered one at a time to a pair of chimpanzees. The results consistently showed the dominant animal, whether male or female, to yield priority at the food chute to a female partner in heat. In mates, the male that was usually in control of the situation permitted his female to take all the food in exchange for sexual favors while she was in her swelling. In the less usual cases of female dominance, it was the female that yielded privilege during heat. Where two females were paired, the dominant one was likely to grant privilege to the subordinate during the latter's swelling. If the dominant female were receptive herself, she might encourage or permit the other to act as male. In experiments where the expectation of success was more nearly equalized for the partners by a technique of prefeeding, genital swelling was still a decided asset in the females' attempt to obtain food at the chute. They enjoyed this advantage whether paired with males or other females whose ovaries had been removed (463).

Thus, in ape as in monkey, oestrus is responsible for readjustments in the social relationship between the sexes. It would be an oversimplification to describe these changes as shifts in

dominance status. In the monkey, although the male maintains strict dominance over the female, he allows her greater privileges than when she is not receptive. In the chimpanzee the general pattern is for dominance in the food situation to be temporarily traded in for sexual accommodation. An oestrous female may entice her dominant mate away from the chute or, on the other hand, may grant privilege to her subordinate mate presumably in return for favors. Analogous considerations are applicable to female pairings. Oestrus affects chimpanzee dominance, to be sure, but does not bear the fixed relationship to it that one might expect if the physiological factors were solely responsible. In the ape, the physiological state affords a means of shifting the existing dominance status in line with the motivation uppermost at the moment.

At the anthropoid level, the sociosexual relationships depend on mutual recognition and agreement. To the biological function of mating, companionship is added as an end in itself. As we have noted, personality differences, with all they entail in the way of compatibility or its opposite, become conspicuous. Like married couples, chimpanzee mates present a variety of conjugal pictures. Although there are as definite sex differences in behavior as in physique, individuality seems more influential than fixed traits of masculinity and femininity (677, 678). Many factors affect social relationships and responses. Important as are such physical characteristics as size, strength, and vigor, we should be careful not to underestimate psychological traits. "Often the smaller and weaker individual irrespective of sex, stands superior by reason of greater courage, self-confidence, determination, and persistence" (678, p. 196).

In conclusion, we may point out that within the primates, biological mechanisms are increasingly less rigid in their operation and the social influences more numerous and intricate in their effects. Personality makes its appearance, and sexual as well as other specific behaviors must be viewed in relationship to the total structure.

CHAPTER VII

THE FAMILY IN PREHUMAN PRIMATE SOCIETY

The gradual recognition and appreciation of individuality and the increasing dependence of the young conspire toward more permanent mateships and more stable family groupings as we ascend the primate scale. Family life centers around the care of the young. Because of her close physiological relationship with her offspring, the mother is always chiefly, and often solely, responsible for bringing up her family.

PARENT-CHILD RELATIONS

Lemur.—Our knowledge of the reproductive behavior of primates has recently been increased by Lowther's careful study of a species of lemur (374). Figure 11 gives an idea of the appearance of this very primitive primate (374, plate III, Fig. 5). Observing a mated pair at close range, the author noted that a week before the birth of twins the mother built a nest of torn newspapers in her sleeping box. Shortly after birth, the little ones showed considerable maturity: they could cling to the perpendicular surface of the box and stand on all fours. At first, they clung to the mother with their feet, but after the first day or two they could be found under her, feeding, or in the nest. The mother was observed to carry the babies about, picking each one up in her mouth by the neck or back in the manner of many lower mammals. There was much evidence of maternal solicitude. When the young were inspected, the mother would hover near and promptly retrieve them as soon as they were released, returning them to the cage and licking them. This maternal interest continued unabated even when the young became too heavy to

be carried and no longer suckled. After a year of observation, the mother was still seen to caress her offspring.

The father, on the contrary, paid little attention to the twins and never assumed as much responsibility for them as the mother.

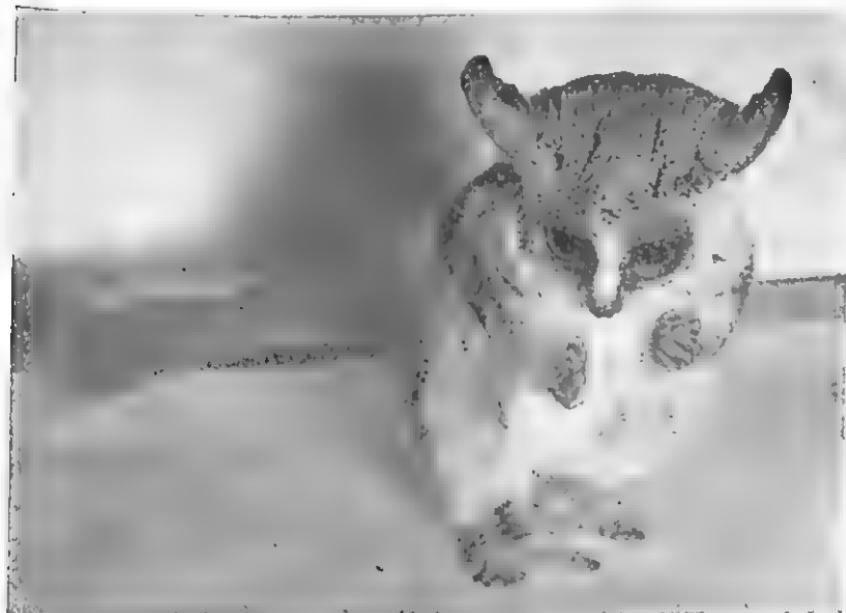


FIG. 11.—The lemur, a primitive primate. (Courtesy of F. de L. Lowther, A study of the activities of a pair of *Galago senegalensis moholi* in captivity, etc. *Zoologica*, 1940, 26, 433-462 + 6 plates.)

Monkeys.—The most complete account of maternal behavior among the lower primates concerns the macaques (275, 276, 354, 621). A sample protocol from Tinklepaugh reporting the birth process in a new mother illustrates the essential features (621, pp. 263-264):

- 1:48 A.M. Head of baby appears.
- 1:49 A.M. Mother reaches back with both hands, seizes and draws head around to one side and forward, licking it as she does so. Baby begins crying. Washing process is continued.
- 1:57 A.M. Baby, left to its own efforts, clings to mother's thigh, cries, and looks around.

- 2:06 A.M. Mother lays afterbirth down and licks baby. Baby looks around, yawns.
- 2:08 A.M. Mother alternately eats afterbirth and licks baby. Baby clings unassisted to the mother's side and persistently peers about.
- 2:45 A.M. The baby, in the course of its mouthing through the mother's fur, locates the right nipple and mouths it.

It is a temptation to humanize these activities by assuming an altruistic mother love which impels the parturient monkey to give her baby its bath and dinner. Scientific objectivity, however, demands a simpler explanation. The bath is performed for the sake of the mother rather than the baby. The fetal fluids satisfy a craving on the part of the mother, associated with her physiological state. Licking these fluids off the baby is not different from licking the fluids off her hands or consuming the afterbirth. Even her fighting to prevent the removal of her infant is apparently related to this special hunger drive since she will cling just as tightly to the placenta before its consumption. Again in the case of the baby's dinner, the facts do not warrant our giving credit to the mother. Finding the nipple is purely accidental, resulting from the baby's trial-and-error exploration of the mother's fur with its mouth. As Tinklepaugh and Hartman expressed it in one investigation, "from a nutritional standpoint, the baby suckles the mother, the mother does not nurse the baby" (621, p. 282). Further evidence against maternal altruism in feeding the young is the resentment expressed by mothers of their infants' food-taking activities. One mother, Dolly, was observed to take food forcibly out of the baby's mouth and eat it herself even when her own cheek pouches were distended to their full capacity (354). Under stress, the food priority exercised by mothers over their own infants is very striking. Carpenter describes the transportation of more than 100 rhesus mothers and infants from India to Puerto Rico. During the voyage it was necessary to accustom the animals to a new diet and at times to feed them sparingly.

The mothers almost uniformly fought their infants away from the food. Moreover, eight or ten mothers killed their own babies (135).

The initial behavior of mothers toward their young does not seem to spring from mother love. This is not to deny, however, the development of close attachments through conditioning during the days of intimate physical contact that follow birth. There is a great deal of evidence of maternal fondling, grooming, and protection from escape or injury.

The wide variability among monkey mothers, as among human mothers, testifies to the complexity of factors determining their attitudes toward offspring and the need for evaluating their behavior in the light of their individual temperaments. One mother, for example, always put her baby's comfort ahead of her own: if it squirmed in discomfort because of her position, she moved about until it was quieted. In another case, in a similar situation, the mother would brusquely slap her infant or shove it into a new position. These contrasting maternal attitudes seemed to be reflected in the behavior of the young monkeys. The child of the more devoted mother became very dependent and timid, while the other was active and self-assertive (621). Human parallels may be found in books on child psychology.

The New World monkeys have provided a valuable supplement to our knowledge of maternal as well as of mating behavior among the lower primates. Again the richest material comes from the Central American howlers (130). The young are at first parasitic upon the mother, and their behavior has constant reference to her. She in turn supplies the needed protection and is an important means of temperature regulation. Moreover, she directs their spontaneous behavior to a certain extent, assists them in crossing spaces between trees, and retrieves those that fall. The bond between mother and child is apparently very specific since infants only a few days old react positively to their own mothers, carefully avoiding other animals of similar size and coloring.

Weaning is usually initiated by the birth of a new baby. Sibling rivalry is sometimes very keen, the older child trying to pull the infant away from the mother or to wedge itself between infant and mother.

Through play the juvenile howler comes to associate more and more with other members of his group. The father plays a part in the socialization of the young howler. Although indifferent at first, he shows increasing interest in the child, supplementing its other social relations and helping to integrate it with the larger group.

In the case of the spider monkeys of Panama, the period of dependency is longer than in the howlers, and tuition plays a more conspicuous part. The mother helps her young over difficult places by holding together separated vines until it has safely bridged the gap, and when making dangerous crossings over several treetops, she carries the young animal on her back (131).

Apes.—One of the clearest pictures of parental behavior among the higher primates is afforded by the gibbon. In this form it is not unusual for new mothers to fail to take adequate care of their young. In one instance a female in labor jumped away at the moment of delivery, thereby letting the baby fall. She proved to be so indifferent to her offspring that she had to be forcibly held while it nursed. Normally, during the first month or six weeks, the young gibbon is in constant contact with its mother, whose body serves as a kind of furry nest. As the child's motor capacities develop, it becomes explorative, often leaving the mother, while she is resting, to play with other children. Gradually complete independence is attained, and the young individual takes his place among his peers (129, 151).

From the first, the father gibbon shares with the mother responsibility for the young. He has even been known to eat part of the placenta! He cooperates in inspecting, grooming, manipulating, and playing with the youngsters. Moreover, he protects them from danger. In one case a juvenile adopted an adult male which carried it most of the day.

Of the anthropoids, the chimpanzee has been subjected to the most carefully controlled observations of maternal behavior. In comparison with lower primates, the outstanding difference lies in the wider range of variability and in the relatively greater role of experience. In spite of similarities to the monkey in parturition process, individual differences are conspicuous from the start. It is customary for the mother to lick up from the



FIG. 12.—Mother chimpanzee teaching baby to walk. (Courtesy of R. M. Yerkes, *Chimpanzees*, New Haven: Yale Univ. Press, 1943, oppos. p. 44.)

floor of the cage available fluids and partially to consume the afterbirth. These activities are not invariable, however, and may even be omitted without preventing later maternal ministrations. The experienced mother accepts her infant, takes it up, examines it, gently and carefully grooms it, and permits it to cling to her, carrying it about almost continuously (684). She resents interference by man or other animals and does her best to prevent separation from her baby (94). Cases have been reported where breathing was started in apparently lifeless newborn infants by

their mothers' adept manipulations (17, 212). In addition to caring for its physical welfare, the chimpanzee mother plays games with child, involving tickling, chasing, grasping, tumbling, boxing, rocking, hugging, fondling, lifting, etc. (90, 575). Moreover, there seem to be systematic attempts to exercise the little one and even to give it tuition in walking (677, 687) as suggested by Figure 12 (677, oppos. p. 44).

The new mother, in contrast to one that has previously borne young, is frequently baffled by the advent of the baby and does not seem to know how to meet the situation. She may fail to behave appropriately and do things entirely unsuitable. One young mother, Cuba, viewed the little stranger with curiosity, biting its foot as if to test its edibility, poking straws into its eyes and ears, and constantly moving it about. She was unwilling to let it cling to her or nurse (684). In the more extreme case of Dwina, the female went into paroxysms of fear at the sight of the infant comparable with those which she had previously displayed upon the sudden appearance of earthworms and other strange objects. This abnormal maternal behavior, however, may have been in part a toxic effect since the poor animal developed a fatal puerperal sepsis soon after (618).

There is little doubt as to the importance of experience in chimpanzee parturition and infant care. Practice helps to adapt the individual in general and also to perfect specific acts. To what extent social tradition enters the picture, we cannot state with certainty, but the proximity of other mothers and their assistance to the new mother should not be overlooked.

Maternal solicitude in the chimpanzee outlasts the physical dependence of the young. The behavior of the mother when faced with her offspring after separation has been experimentally studied (572). The intensity of the maternal reactions was judged on a five-point scale ranging from 0, representing complete indifference, to 100, indicating violent agitation expressed in loud cries and attempts to snatch the baby from the experimenter's

hands. Several series of tests were made, after different intervals of separation. In some, each mother was confronted with a strange baby in addition to her own in order to test her ability to discriminate. In all cases the young animal was held in the arms of the experimenter before the mother's cage. Table 6 shows the results of a test made after a full year's separation. Two test periods 11 days apart appear in Table 6 (572, p. 490). The

TABLE 6.—AVERAGE RATING FOR INTENSITY OF REACTION

Mother	Test 1		Test 2	
	Own	Strange	Own	Strange
Josie.....	35.5	20.6	36.7	19.2
Wendy.....	54.3	20.0	54.5	35.2
Pati.....	64.0	27.0	36.7	12.6
Mona.....	48.0	19.3	40.0	4.5
Fifi.....	7.2	6.5	9.2	7.2
Average.....	41.8	18.7	35.4	15.8

difference in maternal responsiveness to own as compared with a strange baby is strikingly shown in the data. A more personal indication of the same phenomenon appears in Figure 13, a photograph of the actual greeting between a mother and two infants presented to her (572).

Although the chimpanzee father does not participate in the responsibility of rearing the young, he remains near by during the early weeks and seems ready to give a helping hand when opportunity offers. He never interferes with the mother but assumes the role of patriarchal protector, shielding his family from danger (676).

SOCIAL PATTERNING

The prolonged care of young unites those immediately concerned in close family ties which constitute one of the main pillars of primate society. Of even greater importance, however, than the



FIG. 13.—Reunion between chimpanzee mother and babies. *Upper*, greeting own offspring. *Lower*, greeting unrelated baby. (Courtesy of K. W. Spence, *Réaction des mères chimpanzés à l'égard des enfants chimpanzés après séparation*, *J. Psychol. norm. path.*, 1937, **34**, 475-493.)

effect of the family on social structure is the reciprocal effect of social structure on the family, for the form of family grouping assumed in a given society reflects the total pattern of that society. The sociologist who seeks in man's closest relatives a fundamental form to serve as a model for the refashioning of human society will seek in vain. Among primates, the only generalization is that generalization is impossible. The rule is variation. There is no single primate pattern. Primate pre-cultures differ from one another as widely as primitive cultures.

Primate Dictatorship.—Among monkeys we find striking contrasts in social organization (396). We have already noted the importance of dominance in the mating behavior of macaque and baboon. Little wonder, since dominance in these forms constitutes the chief instrument of social control in their highly insecure competitive societies. Rugged individualism is the order of the day, and to him that hath more is given. In the rhesus monkey dominance follows a straight-line arrangement within a given group. Moreover, the territorial range enjoyed by a group depends on the relative dominance of male members of interacting groups. In one series of observations removal of the most autocratic male effectively reduced the range of the whole. In few groups does dominance pervade social life more completely than in the baboons (700). These animals appear to be very gregarious, moving in herds made up of stable family units, which in turn consist of a male overlord, his female or females, their dependent young, and an occasional bachelor whose low-dominance status has prevented his obtaining a female of his own. The extremely possessive overlord is indeed a literal autocrat of the breakfast table. If a limited quantity of fruit is thrown to a male sitting with his harem, he will eat it all. The situation is illustrated by Figure 14 (700, p. 212). The females are treated as material objects and express an attitude of extreme passivity toward their overlords. Infidelity is taboo and indulged in only behind the master's back. Should the

male catch his female in the act, she quickly makes conciliatory sexual presentation which may or may not appease his wrath. Serious attempts at abduction by bachelors result in battles royal in which many families participate and which are usually fatal to the females in question.



FIG. 14.—The autocrat of the breakfast table. Baboon overlord appropriates food. (From S. Zuckerman, *The Social Life of Monkeys and Apes*, New York, Harcourt, 1932, p. 212.)

The extreme of despotism appears among the langurs where a single male may dominate an entire group of 10 or 12 females and young while all other adult males are excluded from association in the group. According to Carpenter who observed these animals in their native Thailand, they represent the highest

degree of autocratic male dominance known and provide a vivid example of the way dominance behavior may affect the grouping pattern (135). It must have been this type of society that inspired Freud's theory of the primal horde (219)!

Primate Socialism.—A very different picture is presented by the cebus howlers (130). These groups live in seminomadic clans, consisting of from 4 to 35 individuals, not primarily organized in family units. According to Yerkes and Yerkes (688) their peculiar vocal speciality, the howl, may be used as a substitute for physical combat and in this way have made possible the relatively high degree of socialization that they have been able to attain. Dominance plays a much less conspicuous role in social control than in the Old World forms we have considered. In the howlers it is impossible to pick out rulers or overlords because leadership tends to be rotated among different members of the group, depending on personal characteristics other than psychophysical superiority.

Males in comparison with females seem to be more aggressive, but even in the sexual sphere the dominance gradient is not steep. Thus it would seem that dominance is not so closely correlated with the masculine; subordination, with the feminine role, as in macaque or baboon. In this connection the communal type of sexual relationship in contrast to a possessive monogamy or polygyny is not without significance. Cebus males apparently do not compete for food, females, or social positions and are seldom pugnacious with one another. Similarly, the females associate peacefully together. Groups of 8 or 10 may be seen communally feeding from the same limb of a tree. The group cooperation that has developed within the secure socialistic climate of the howling monkey is a model to all primates not excluding man.

Freedom for the Individual.—Higher on the primate branch we come to the familiar gibbon and chimpanzee. The development of personality and the increased ability to respond to

symbols exert an inevitable effect upon social relations in these forms. In the gibbon (129), social life centers around a pair of animals. Since there are no behavioral sex differences except in reproductive activities, there is virtual equality in dominance. The attachment between mates seems to be very specific and exclusive, with strong antagonisms among like-sexed adults. Carpenter, who made extensive field observations on the gibbon, is inclined to attribute the closeness of the conjugal bond to the relative absence of periodicity in sexual behavior. Whatever the explanation, the fact remains that the mateship with the offspring resulting therefrom is the basic unit of gibbon society.

Aside from sexual antagonisms, the relationships among adults within a group of gibbons is apparently conciliatory if not actually cooperative. An individual's status depends not on direct and simple aggressiveness but on its effectiveness in leading the group to food, defending it against strangers, and satisfying the mating needs of the opposite sex. Changes in social position come about very gradually and do not seem to involve serious frustrations. Hence there is little fighting within a gibbon community. Moreover, different groups seldom enter into open conflict with one another since vocalization and bluffing behavior serve as substitutes for actual combat. Owing to its importance as the common bone of contention, and boundary disputes occur from time to time. Reminiscent of the submammalian forms is the fact that the winning group is usually the one nearest the focus of its own territory.

On the whole, social life for the gibbon presents a fairly secure and peaceful picture centered around a closely knit family group. Individuals owe their status to personal qualities rather than to brute force, and social control is exerted through the use of symbols rather than direct combat.

We are already acquainted with many aspects of chimpanzee social life. We shall now try to piece together a view of the

whole from the experimental and field material available (442, 688). Under natural conditions, they live in small groups, averaging eight or nine individuals. Whether the nucleus is the family is not altogether clear from present evidence, but the trend is in that direction. The presence of more than one adult male and female in the reproductive groups seems to indicate polygamous relationships. The males, by virtue of their superior size and strength, assume the responsibility of guarding and defending the weaker sex and the young, as we have noted above. It does not follow from this, however, that the drive for social superiority is stronger in the male than the female. In any particular social situation either sex may command priority, and shifts may occur, as, for example, during the female's swelling phase. Dominance then appears in the chimpanzee as an important social force, but it is not the ruthless dominance of the other Old World forms. As in the gibbon, it is a dominance based on personality and social merit.

Unfortunately the information on other primates is too fragmentary to give us an accurate impression of their societies, but the examples we have selected should suffice to suggest the variety to be found at the prehuman level. The increasing importance of personality and of potentiality for change below man should give us fresh hope for the ultimate success of courageous education and social planning for *Homo sapiens*.

CHAPTER VIII

SEX AS A VALUE IN PRIMITIVE SOCIETIES

Our survey of animal societies has demonstrated the flexibility of sexual behavior. We have seen it become increasingly subject to social regulation as we ascended the evolutionary scale. On reaching the human level we should be prepared to find society predominant over instinct. This is indeed the case. Different cultures evaluate sex differently and shape individual conduct accordingly. In some it is granted relatively free expression as a source of pleasure and relaxation. In others it is hedged about with so many restrictions that it is regarded as merely a means of preserving the race. A comparative study of the part played by sex in other groups will lead us to a better understanding of its role in ours.

A CONSTRUCTIVE SOCIAL FORCE: THE TROBRIANDERS

It is naively assumed by the layman that savages allow sex to run rampant. Nothing could be farther from the truth. All cultures impose restrictions on sexual expression, sometimes more elaborate than those in our own civilization. Nevertheless, some groups regard sex as pleasurable in its own right and encourage their children to regard it in this way. Such a group are the Trobrianders, made famous by Malinowski (391, 393). For them sex is acceptable as a natural interest whose development is progressive from childhood to maturity. Aside from the major incest taboos which in some form appear in every society, sexual expression in childhood is quite free if performed in accordance with the accepted etiquette of privacy and moderation.

Childhood Sex Experience.—Children become acquainted with sex at a very early age. Far from being shielded from it by their parents, they are often introduced to it by witnessing parental intercourse. This behavior they imitate in the popular game of husband and wife described by Malinowski as follows (393, p. 58):

A small hut of sticks and boughs is constructed in a secluded part of the jungle, and a couple or more repair thither and play at husband and wife, prepare food, and carry out or imitate as best they can the act of sex.

Even though they may be incapable of performing the complete sex act, they apparently derive some positive pleasure from the genital manipulations involved as well as from the satisfaction of their curiosity. The attitude of the parents toward this activity as toward many others is one of indulgence. Children enjoy a friendly comradeship with their parents which results in an early emotional maturity readily reflected in the sexual sphere.

Premarital Love Affairs.—In no phase of Trobriand life does the shift from childhood to adolescence come as a sudden change. The transition is gradual throughout. The individual's ever-expanding social independence is extended to his amorous affairs, which at this time graduate from play to passion. They now demand greater respect and become systematized into more stable relationships. The premarital liaison is a kind of tryout during which the adolescent has wide opportunity for psychosexual experience. In view of the greater seriousness of relations at this period as compared with earlier sex play, privacy is prerequisite. It is provided by the interesting institution of the *bachelor's house*, where an adolescent couple may go to sleep together. At first these assignations are rather furtive and irregular, but they become stronger and more permanent as the young people mature. Gradually a personal preference develops which ultimately leads to betrothal. The rule then becomes regular nightly intercourse and frequent appearances together in public.

Marital Reserve.—As we have noted, sexual experimentation precedes rather than follows marriage. Honeymoon for the Trobriander, instead of being a period of sexual adjustment, is characterized by voluntary abstinence. Newlyweds apparently think less of love-making than they have done for a long while previously. Although there is no cultural taboo on sexual indulgence, the fact that the initial months of marriage are spent under the parental roof and eye serves as an effective inhibitor.

The changed attitude adopted toward sex with marriage is a natural part of the growing-up process. Sex as pleasure is childish, and the adulthood value of sex is oriented toward status. Since a man must put away childish things, the break in kind of sex attitude is simply a mark of maturity and has no unfavorable repercussions on his personality. The Trobriander cannot enjoy full status in the group until he is married. There are no bachelors of mature age except idiots, invalids, and albinos. For the woman, to whom social status is less important, the chief motives for marriage are personal affection and the desire to have children in wedlock. The subordination of sex to other values is shown by the extreme reserve surrounding sexual relations after marriage. Malinowski reported great difficulty in getting any information concerning conjugal life. It is a breach of etiquette to remark upon the good looks of a wife to a husband, and to say, "Copulate with thy wife," is an unpardonable insult and may lead to murder, sorcery, or suicide. The strict restraint and wife contrasts sharply with their otherwise free and easy manner toward each other. It contrasts even more sharply with the freedom permitted before marriage.

Mutual grooming is a social activity permitted husband and wife, through which tender as well as dominance attitudes may find expression. The phylogenetic continuity is nicely illustrated by the pair of photographs in Figure 15 (393, p. 108; 677, oppos. p. 51).

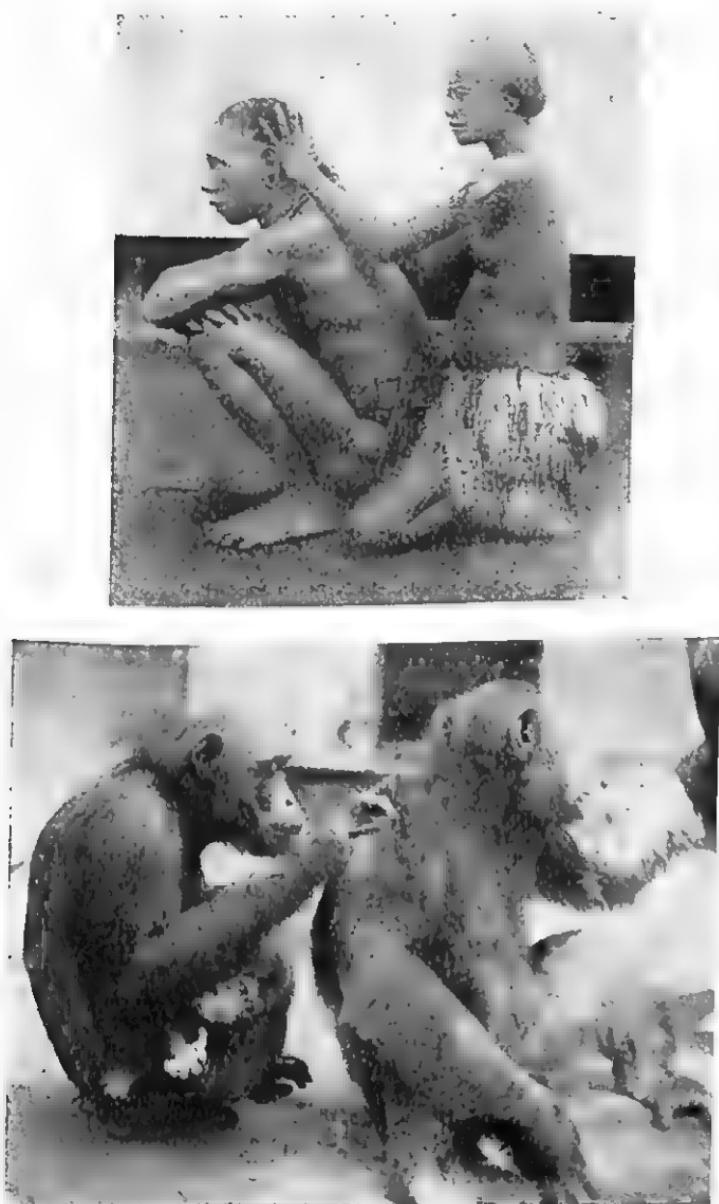


FIG. 15.—Conjugal grooming. (Courtesy of B. Malinowski, *The Sexual Life of Savages in North-western Melanesia*, 2 vol's, 3d. ed., London: Routledge, 1932, p. 108; R. M. Yerkes, *Chimpanzees*, New Haven: Yale University Press, 1943, oppos. p. 51.)

As in our society, sexual monopoly in marriage is valued among the Trobrianders. The ego identification which this proprietary attitude entails results in the prevalence of jealousy with them as with us. Moreover, the rigidity of the marriage bond makes it brittle, and fidelity is well paid in social rewards to counteract the temptation of adultery.

Sexual Recreation.—In addition to the regular sexual outlets provided by Trobriand society, various other opportunities are offered. Sex is not confined to preparation for the serious business of marriage but is also recognized as a source of recreation. At certain seasons, especially at full moon, the people gather together to play group games whose fascination depends largely on the erotic elements of physical contact, rhythm, and singing which they involve. At certain times outright sexual license is permitted. Orgiastic festivals are held in which sexual impulses may be satisfied in public, although normally such behavior would be considered inexcusably bad taste.

Deviant Sex Behavior.—An outstanding feature of Trobriand sex life is its freedom from perversion. Deviations from normal heterosexuality are ridiculed and in this way made undesirable. According to the prevailing ideology, perversions are a sign of sexual poverty just as eating inferior foods is a sign of economic poverty. They are indulged in only by those who are prevented from obtaining normal satisfactions. The dictum, "Only an idiot masturbates," applies equally well to other forms of aberrant sexuality. Exhibitionism and peeping are serious breaches in the etiquette of privacy, and homosexuality between males is regarded as unclean because of its association with excreta. Undoubtedly the extraordinary richness of opportunity for normal sexual behavior accounts for the absence of perversions. The early socialization of the child contributes to this orientation by preventing the substitution of individual modes of adjustment for those in general use as well as by placing him directly and constantly under group pressure.

In summary, the Trobrianders place a high value on sex, regarding it as a source of passing pleasure as well as of serious, enduring attachment. Sexual interest is allowed generous scope from earliest childhood to maturity. It is only after marriage that society frowns upon free sexual expression. The explanation of this sudden change from extreme freedom to extreme caution may be sought in the broader meaning of marriage to the Trobriander. As noted above, when an individual grows up his chief concern is to maintain his social status through marriage rather than to continue the more childish interest in sex as pleasure. The extreme reticence between husband and wife appears to the writer as a means of preventing any possible overflow of erotic attitude from the marital partnership.

SEX AS COMPENSATION: THE MARQUESANS

Food Anxiety.—A positive evaluation of sex may become so exaggerated as to eclipse many of the more homely values. A situation of this kind may be found among the Marquesans who have resorted to sex as a means of compensating them for certain frustrations (319). The lives of these people are restricted by two threats to security—hunger starvation and sex starvation. They live on equatorial islands in the central Pacific which are subject to long and devastating droughts. As agriculture is difficult at any time, they are forced to depend almost entirely on tree crops and fish. The birth of a child is marked by the planting of certain trees to ensure its subsistence. The constant threat of famine is a source of great anxiety which infects large areas of Marquesan behavior. It accounts for the complicated regulations concerning the use of food and the elaborate decorations on food utensils. It accounts for the social importance attached to feasts and gift exchanges, as well as for the fact that food is one of the few things ever stolen. The prominence of food and eating in the Marquesan system of values also results in the development of various forms of cannibalism.

practiced by these people and in a reciprocal fear of being devoured.

Shortage of Women.—Another basic frustration in Marquesan life centers around the scarcity of women, as indicated by the disproportionate sex ratio of $2\frac{1}{2}$ men to 1 woman. Her rarity lends glamour and greatly enhances her value as a sex object. There are few social positions from which her sex excludes her. In fact her sex is a decided asset, and through a good match she may easily improve her social status. Marriage is a polyandrous affair, with two or three husbands to every wife. In the households of chiefs there may be 11 or 12 men and 3 or 4 women who constitute a marriage group, all sharing sexual privileges. Although a wife is not the official head of a household unless she happens to be an eldest child, the effective power rests with her. By the distribution of her sexual favors she is able to control her husbands. It is she who takes the initiative in the sex act while the man plays up her erotic wishes by an elaborate ritual. Although not suffering from impotence, the Marquesan male labors under the constant threat of rejection for failure to please. Associated with this fear as well as with his food anxiety is the fear of being eaten by a woman. By regarding the penis as a feeding organ, he is able to derive some comfort from the notion that intercourse is a way of allaying her cannibalistic tendencies. Exclusive sexual possession is socially disapproved and the expression of male jealousy is in extremely poor taste. Such tendencies have to be rigidly curbed because Marquesan society could not risk male morale on which the whole economic productive system depends. Fortunately male solidarity is preserved by the adoption of an attitude of disdain and aloofness toward women. In spite of her sexual desirability, her limitations in other spheres are recognized and make for ambivalence in men.

Among women, there is open competition for excellence in the erotic arts in an effort to get the best "catch" inasmuch as the

most skilled will be chosen as wives in socially prominent households. The wish to excel other women is expressed in a desire for pregnancy, a condition that carries with it special prestige and power over the chief husband. So strong is this desire that feigned pregnancy is one of the more common neurotic manifestations.

Erotic Excess.—The major threats of food and sex deprivation converge to create a cult of the erotic. Sexual indulgence helps to reduce the tensions associated with the ever-present food anxiety and may even serve as an intoxicant in cannibalistic orgies. In the recent depression in our own society, a similar turning to sex as a substitute for other sources of satisfaction has been noted (438). The overvaluation of sex in Marquesan culture serves the further purpose of making up in quality what is lacking in quantity owing to the scarcity of women.

The sensual is woven tightly into the entire fabric of the society. Not only does it characterize adult relationships but the child is introduced to it in earliest infancy. Maternal care is subordinated to the development of erotic techniques and the breasts as feeding organs are sacrificed to their sensual uses. Since woman's chief role is a sexual one, she is relieved of the burden of child care which is relegated to the secondary husbands. In the absence of emotional intimacy with his mother, the Marquesan child presumably lacks the sense of security and protection found in cultures where maternal tenderness is highly esteemed. As might be expected, no trace of the Oedipus complex can be found in association with such a deflated mother ideal, although the father-daughter type of incest phantasy has been noted. Failure of the mother to provide emotional security is also reflected in the folklore which represents women in the unfavorable position of cannibals and thieves of children's food.

In the structuring of Marquesan personality, tenderness has been exchanged for sensuality which characterizes every stage of development. Masturbation is used by adults as a pacifier for

infants. In the case of girls there is even a systematic effort to elongate the labia, thereby increasing attractiveness. Sexual play is practiced from earliest childhood, and regular intercourse is begun before puberty. Between puberty and marriage, young people form a special group whose function is to entertain at public ceremonies with singing, dancing, and the sexual accommodation of male visitors. The close of the feast is marked by multiple copulation.

In general, sex among the Marquesans plays a complex, compensatory role. It serves as a way of draining off some of the anxiety associated with food. Moreover, the elaborateness of erotic ritual constitutes a kind of insurance against possible sexual starvation due to the scarcity of women. The emphasis on sex, through the very sacrifice of maternal protection which it occasions, becomes all the more firmly entrenched as a substitute source of satisfaction.

GROWTH VERSUS SEX: THE ARAPESH

Sex Taboos and Child Development.—Having examined a culture that rates sex highly, let us turn to one that definitely plays it down in favor of another value. Such a situation may be found among the Arapesh of New Guinea, of whom Mead has given us an interesting account (409, 410). For these people life centers around the concept of growth in all its aspects. As one of the most conspicuous and important examples of growth, child development naturally commands the most absorbing interest of the group. The maternal role is exalted and the male consistently imitates the female. According to native belief the child is the joint product of both father and mother over a period of time. At first frequent intercourse between parents is necessary to nourish the egg. As soon as the mother's breasts show the characteristic pregnancy changes, however, the new individual is considered safely launched in its development and from that time on must rest undisturbed within the mother's

body. That means the cessation of all sexual activity. This taboo precludes coitus not only with the child's mother but with other women, too. The husband may not even cohabit with another legal wife. These rules are scrupulously observed because Arapesh prospective parents are too eager to bear healthy offspring to risk their welfare. As soon as the baby is born, the father lies down beside the mother and shares with her certain dietary restrictions and magical rites. After five days of lying-in, ceremonies begin which gradually free the parents from many of the prohibitions to which they have subjected themselves. The sexual taboo is one of the last to be removed. It is not until the child takes its first steps that it is considered strong enough to endure its parents' sexuality again.

Adolescent Attitudes.—The idea that sex interferes with growth comes to the fore again at adolescence. Even in the initiation ceremonies the emphasis is upon general growth rather than sexual maturity and potency. The Arapesh regard the menstrual function in woman as antithetical to a growth of yams and children and even to her own physical development. During the time she may neither cook, smoke, nor chew areca nut. During adolescence sexual experimentation of any kind is strictly forbidden because of the fear that it will stunt growth. In the case of girls, sexual experience before full maturity has been achieved is considered especially disastrous, preventing the development of the luxurious breasts which, because of their promise of rich motherhood, are the essence of womanly charm.

Sex as Affection in Marriage.—As in the development of the child, so in personal relationships, growth takes precedence over sex. Just as the Arapesh father "grows" his child, the Arapesh husband grows his wife. She becomes betrothed to him as a little girl when she goes to live among his people. To all of them she becomes closely attached and her feeling for her husband and his father and brothers is practically identical with her feeling for her own father and brothers. After long years during which

"husband" and "wife" live together like brother and sister, the assumption of sexual relations comes as a natural outgrowth of the affection already existing between them. It is simply a more final and complete expression of the same kind of feeling. There is no interest in erotic satisfaction in sexual relations. In fact, the occurrence of a specific climax or orgasm in women is not even recognized. In men aggressive sexuality is played down. The sex act is apparently not a highly charged experience arising from physical passion but a comfortable mutual expression of affection for which both partners have been long and well prepared.

All in all, sex among the Arapesh is not regarded as a pleasure to be sought for its own sake. It has its place in society but that place is to serve more important needs, to foster the genetic processes of growth around which group life revolves.

SEX AS SIN: THE MANUS

The high evaluation of sex as pleasure by the Marquesans affords an interesting contrast with the low erotic value the Arapesh place on reproductive activities. These differences by no means exhaust the range of cultural attitudes toward this important aspect of life, but time and space do not permit an indefinite multiplication of examples. Before we turn to a study of sex in our own culture, however, we shall glance briefly at the Manus, another New Guinea group described by Mead (406, 407). As among the Arapesh, sex is devalued. In this case, however, it is not merely a matter of keeping it in its place but of actually condemning it. Their religion surrounds it with a sense of sin reminiscent of our own puritan tradition.

Marriage as an Investment.—Manus culture, like our own, centers around the accumulation of wealth and property. Economic success is the goal of life and the means to that end is trade. Marriages represent one of the most important opportunities for investment because they provide the occasion for a

variety of economic exchanges. Mead points out that the Manus financiers invest in marriages just as we invest in export companies or corporations. Advantageous marriages are pre-arranged early in the life of the individuals concerned by scheming parents. An initial betrothal payment is made for a male child in which a large number of relatives invest shell money and dogs' teeth. The recipients on the bride's side agree to pay these back in the future in pigs and oil. Other events associated with the institution of marriage also serve as gala occasions for commerce. Ceremonies marking puberty, weddings, and silver weddings are all capitalized in the same way. The individual even at his own marriage is lost in the scuffle for gain that goes on around him.

Religion vs. Sex.—When the older generation has so much money at stake in marriage, it is little wonder that every precaution is taken to keep roving sex preferences from interfering with this investment. This is accomplished by the spirits of the recently dead ancestors whose business it is to supervise their descendants' economic and sexual lives. Punishments are meted out to those who neglect to invest the family capital wisely or who violate the sex code. At best, sex is regarded as a necessary evil, an ever-present threat to the economic exchanges in which the elders have invested their wealth. At worst, it is conceived of as inherently shameful and unpleasant.

The Sex Lives of Men and Women.—The sexual relationship, permissible only between man and wife, is reduced to crude biological function. It is wrested from tenderness or playfulness by a clever cultural device of dissociation. A man is allowed to enjoy a relationship of tenderness, solicitude, and mutual understanding with his sister; he is permitted bantering play and humorous familiarity with his female cross cousin; but neither of these attitudes may be expressed toward his wife. For her there remains only the physical sex relationship stripped of all warmth and strained by unfamiliarity and shame. For him she

represents merely a drudge, fit for intercourse, childbearing, and housework.

From the girl's viewpoint the prospect is dismal indeed. After a close and happy relationship with her father is ended by early betrothal, her life becomes increasingly hedged about with restrictions. She must avoid some youths as in-laws and others



FIG. 16.—Before and after betrothal of a Manus bride-to-be. (Courtesy of M. Mead, *Growing Up in New Guinea*, New York: Morrow, 1930, oppos. p. 158.)

as possible seducers. When adolescence comes, there is no blossoming out of romantic interest either with or without storm and stress because her marriage has already been arranged. She must wait through years of boredom for a marriage from which she can expect no personal satisfaction. Figure 16 indicates the change from before to after betrothal (406, oppos. p. 158).

The Manus bride looks forward with dread to her first sex experience with her stranger-husband, as her mother and grandmother have done before her. Frigidity and pain are her traditional lot, and every woman conveys to her growing daughters her repulsion for the humiliating experience of sex. Even menstruation is so shrouded in secrecy and shame that Manus men are kept in ignorance of its periodicity and believe that it occurs only at puberty.

In a setting like this, the absence of sexual experimentation between husband and wife is hardly surprising. It is also hardly surprising, in view of the severity of the restrictions imposed, to find emotional breakdown frequently taking the form of exhibitionism and gross obscenity. Love as a rich, shared experience is not recognized. There is not even a word for love in the language. Nor are there romantic myths, love songs, or social dances. Dancing and dress are matters of economic display alone. The general picture as Mead describes it, is of "a puritan society, rigidly subduing its sex life to meet supernaturally enforced demands which are closely tied up with its property standards" (406, p. 173).

IMPLICATIONS FOR WESTERN CULTURE

These primitive culture patterns contain many useful implications for our own. A generation ago sex in Western culture struggled under the yoke of Victorian repression, which bore more than a superficial resemblance to Manus society. In the name of religion heavy prohibitions were laid upon sexual life with a force that threatened the security of family structure and kept women from achieving status. A misreading of the gospels declared a natural function sin and put in its place the perversion of masochism. The development of biological science, together with the rise of psychoanalysis, gradually restored some measure of respectability to sex in our society. Indeed repression has given way to emphasis, reflected in a compulsive desire on the

part of youth to go as far as possible (523). The apparent overvaluation of sex, however, is somewhat spurious. It does not represent an elevation of sex as a biological impulse or of the erotic as an art. The frantic quality that characterizes a great deal of sexual expression in our society is symptomatic of underlying ego-insecurity. People in our competitive, individualized society have an exorbitant need for affection and reassurance. It is this need for human response rather than a genuine sexual desire which leads them into the tense, clutching types of relationship so prevalent among us. Sexual possession of another somehow reassures an individual and bulwarks his ego-defenses, taking the place of a partnership based on mutual love. This was brought out clearly during the depression when sex afforded the one possible form of security available. Fortunately there is some evidence that this compulsive note is giving way to more natural and spontaneous sexual behavior (162, 438). Sex as a constructive social force that may improve the relations between men and women in our society is just beginning to be recognized.

Our primitive perspectives should help us to understand and improve our own attitudes toward sex. In the Manus we found our own mistakes caricatured and saw to what extremes of frustration they could lead. From the Arapesh we could learn how to surround our children with the lush affection they need to develop unshakable feelings of security. The Marquesans showed us the emotional cost of erotic exaggeration. It was the Trobrianders who revealed to us potentialities for richer emotional development through the absence of warping sexual restrictions in the lives of growing boys and girls. It is against this background of primitive variety in sexual attitudes that we shall later approach a detailed analysis of sex in Western culture.

CHAPTER IX

SEX TYPING OF SOCIAL ROLE

THE CULTURAL MEANING OF MASCULINE AND FEMININE

Even more dependent on culture than the value assigned to sexual behavior is the social role associated with membership in either sex. Out of the vast range of individual variation, societies select certain behavioral patterns and label them "masculine" and "feminine." Stereotypes of class distinctions in sex as in the analogous class distinctions in race are perhaps not directly imbibed with the mother's milk but are just as surely and compellingly infused through all the familiar folkways that surround each new individual. Differences in clothing, manners, and activities of mother and father seem to be among the eternal verities of the child's life, and his own membership in the sex group, with all the privileges or handicaps entailed, are normally accepted without question. Indeed, to question the thoroughly ingrained attitudes and habits with which we have grown up is to try to lift oneself up by one's own bootstraps. To change one's crystallized conception of Negro, Jew, or woman is far more difficult than to change from fork to chopsticks. And yet intelligent social planning demands that we perform just such feats of mental acrobatics. We must get outside of our culture and view it as a visitor from Mars in order to determine what can and should be improved. We have already indicated some of the variety afforded by contemporary cultures in the evaluation of sex. Similar analyses with reference to social roles of the sexes should also serve to correct tendencies toward absolutism concerning this aspect of sex in the social order.

By far the majority of cultures differentiate the sexes in status

and role: most of these follow the *natural* line of cleavage centering around the dominance gradient. There is no reason to dispute the clear and consistent evidence already reviewed, showing dominance to be correlated with male sex hormones in somewhat the same way as are combs, beards, crowing, and second bass. But the case of dominance is not so simple. Social factors play an even greater part than hormones. The tendency for males to be ascendant in social relationships may be encouraged or discouraged. In most societies it is rewarded and, as a consequence, there has developed the stereotyped antithesis of male aggression—female submission. Although this is the most widely accepted dichotomy, it is not universal.

A "Feminine" Culture.—As Mead has shown in the primitive people she has studied, some societies do not draw personality distinctions along sex lines (409). Among the Arapesh, for example, whose culture as we have seen is oriented toward the care of the next generation, men and women cooperate in the cherishing functions (409, 410). The father's "maternal" role approaches that of the mother. As a result, the warm, gentle personality developed in the typical individual regardless of sex embodies characteristics which, according to our standards, are essentially feminine. They do not deny a correlation between maleness and dominance behavior but, believing it to be contrary to their central value, they set up the "feminine" ideal for both men and women. In other words, we draw a sex line, stressing for women the traits that tie in with maternalism but disallowing them in men whose role does not ordinarily include nurturing the young but is concerned with achieving success in a highly competitive economy. Consistent with the failure of the Arapesh to dichotomize the sexes in personality, is their natural, unembarrassed acceptance of physical sex differences. Children who wear no clothing until four or five years of age, early become familiar with the bodies of both sexes, and close physical contact becomes a matter of course. This playing down of sex and self

results in a society of cooperative, secure individuals who pool their efforts regardless of sex in the mutual task of rearing wholesome children.

A "Masculine" Culture.—In harsh contrast to the soft, peaceful Arapesh, are their hostile, head-hunting neighbors, the Mundugumors, whose aggressive individualism suggests the more unfavorable connotations of masculine in our culture (409). The child is born and bred in an atmosphere of insecurity. He is an outcast from the start. Instead of representing a happy fulfillment, pregnancy is the acme of frustration. It means sexual deprivation, coupled with anger and repudiation on the part of the husband. Under such circumstances, the child is hardly a welcome stranger. From the moment of birth, he must struggle for his very existence. Suckling is apparently resented as intensely as gestation and, instead of providing safety and security as among the Arapesh, the situation bristles with tension. In order to get enough milk in abbreviated time and uncomfortable posture, the struggling infant has to develop a fighting attitude, seizing the nipple firmly and sucking fast and furiously. No less ruthless is the weaning process which consists of a progressive pushing away from the mother to the accompaniment of blows and cross words. Through this rude introduction to Mundugumor society, the new member receives the impression of a hostile world—an impression which will be repeatedly confirmed by later experience. This is as true of girls as it is of boys, and the girls consequently grow up to be harsh and aggressive like the boys, and in no way inclined to accept docilely the greater frustrations of the reproductive years that lie ahead. Thus in Mundugumor society the accent is on rugged individualism, and the personality with survival value is violently aggressive, ready to see and avenge insult and delighting at all times in display, action, and fighting. This pattern holds for women as well as for men, suggesting in both cases "masculinity," but "masculinity" distorted by emotional insecurity.

Sex Roles in Reverse.—Arapesh and Mundugumor, though opposed in personality ideals, agree in making little differentiation according to sex. Differences that occur are among individuals—they are not sex-linked. Since it is possible for one society to "go masculine," another to "go feminine," there can be little question of the predominating influence of culture on sex temperament. If this evidence is not sufficiently convincing, we may turn to the third New Guinea tribe described by Mead in this connection, the Tchambuli (409). These people seem to reverse certain aspects of the roles and personalities associated with men and women of Western culture. Originally the men were dominant and played the part of warriors in their society. After the *Pax Britannica*, which outlawed tribal wars, they lost their traditional role and their function became largely decorative.¹ Since the economic support of the group depended on the women's fishing and weaving, female status rose, although not enough to free women from technical subordination to men. Nevertheless it is they who hold the purse strings. A man's life, in contrast, is artistic rather than economic and, despite the fact that art is the supreme value in the society, its pursuit in the last analysis is dependent upon the stable economy which the women provide. At about six or seven years of age, girls are trained intensively in handicrafts and are absorbed into the sober, responsible life of the women. Meanwhile the boy receives no such special training for his future role. As a result, the woman emerges as the dominant, impersonal managing partner, secure and cooperative, while the man develops into a less responsible and emotionally dependent person, prone to petty bickering and misunderstandings. The women are tolerant and appreciative of the men, taking great enjoyment in their games and theatricals.

In keeping with women's greater social dominance is the rough homosexual play in which they indulge on festive occasions. An

¹ LINTON, R., personal communication.

unacknowledged tribute to the high regard in which women are held is a custom among young men of entering the women's group in semidisguise and accepting the attention of the women. According to Mead this has important symbolic significance. She writes (409, p. 256):

. . . The spectacle of women courting males disguised as females, expresses better than any other ritual act that I witnessed the complexities of the sex situation in Tchambuli where men are nominally the owners of their homes, heads of their families, even the owners of their wives, but in which the actual initiative and power are in the hands of the women.

The sex "reversal" manifested by the Tchambuli should not be taken too literally but rather as an indication that the concepts of masculine and feminine are culturally malleable. We should also bear in mind that the problem of sex stereotyping is complicated by the factor of emotional security. The Tchambuli man who had lost his traditional role manifests the less favorable characteristics which we associate with women in our society. The dependency and pettiness, however, have nothing to do with sex as such in either culture but are symptomatic of the emotional insecurity resulting from social subordination in both. Tchambuli women, on the other hand, manifest the self-assurance and grace in the performance of their duties, whether biological or social, which are normal accompaniments of emotional security the world over. The reason why they connote masculinity to us is that it is the male sex in Western culture that has been favored with the opportunity for self-expression while women have been traditionally subordinated.

A contrasting situation may be found in Buka society, in which the women enjoy superiority in theory, the men in practice (48). According to legend, man originally had big breasts and woman, small ones, which they exchanged. Dissatisfied with her big breasts, woman obtained the coveted *upi*, a cylindrical headgear with a bulbous top worn by boys. After she had been given it,

she hid it in the bush but a man caught her with it and killed her. The legend symbolizes the struggle of man for his social rights.

The woman in turn protests against the male domination. In the girls' menstruation ceremony, for example, the women cut down the banana palm and place it in front of the girls' house. This represents a displaced form of castrating the male thereby retrieving the right or power which the women formerly enjoyed. The pattern of tension between the sexes is woven into the whole fabric of the culture.

Reversal in sex roles so far as it affects parental function may be seen in the Manus (406). Here the father is the tender, solicitous, indulgent guardian, while the mother takes second place in the child's affection. Little girls have no dolls and no pattern of playing with babies. Mead reports that when she brought statues from a neighboring tribe, it was the boys who accepted them as dolls and crooned lullabies to them. Sex reversal among these people, however, does not extend to other aspects of personality, and so the contrast with Western culture is less striking.

The diversity of the pictures of sex and personality in these primitive societies can hardly fail to impress one with the importance of culture in their association. Among Mundugumor and Arapesh, certain traits which we call "masculine" and "feminine" are respectively selected as the personality norm for both sexes alike; in the Tchambuli, and to some extent in the Manus, certain traits are specifically assigned to one sex and disallowed in the other. These traits reverse certain aspects of the traditional sex ascriptions of our culture.

DEVIATIONS FROM STANDARDIZED SEX ROLES

Though undeniably important, the role of culture is necessarily limited by the raw material with which it must work. Culture can mold and shape; it cannot create. Some material is more plastic, more readily molded into certain shapes than others. Some is resistant and breaks under the sculptor's chisel. In

human terms, this represents maladjustment. As we have pointed out, the concept of the abnormal must be relative. The violent, aggressive individual may be a leader in Mundugumor society, but a total misfit among the Arapesh, and vice versa, the easygoing responsive person will be more readily assimilated by the Arapesh than among the Mundugumor.

As an example Mead cites the Mundugumor woman, Kwenda, who was discarded by her husband and destined to remain a grass widow because of her unaccountably soft and maternal ways. She even went so far as to refuse his request that she throw away her first child. Among the Arapesh, on the other hand, there was the violent Amitoa, who rebelled against the placid role of women and fought strenuously with her timid, impotent husband. Rather than suckle her children she tried to kill them (409).

The range of individual variation is wide enough to account for conspicuous differences in ease of social channeling and consequently for conspicuous differences in adjustability to the standard cultural mode. In those societies which do not place a premium upon a single personality pattern but which go a step further and specialize their personality types by sex, the risk for maladjustment is even greater, for they pave the way to homosexuality. As Mead makes clear, the individual who has failed to identify himself with the prescribed sex-personality not only has the wrong feelings but the feelings of members of the opposite sex. Strong social pressures are exerted upon individuals to conform to the behavioral pattern of their sex and heavy penalties are levied for failure. Thus the person who finds his sex role too restricting to give adequate scope to his energies and interests is faced with the conflict of spending his life in the performance of distasteful duties or of running the gantlet of social ostracism.

Ceremonial Sex Reversals.—Cultures vary in the ways they handle deviations from the sex roles that they have standardized. As might be expected, there is no problem of homosexuality among the Arapesh or Mundugumor because these societies do

not insist on a sex-temperament linkage. In the Tchambuli, however, we have noted that the men are granted the temporary privilege of dressing as women and participating in homosexual play during ceremonial occasions.

Another example of ceremonial sex reversal is found among the Iatmul people of New Guinea, whose elaborate rituals, or "naven" are described by Bateson (52). Though matriarchal in structure, this group prefers the male sex and despises the feminine role. Men are preoccupied with head-hunting and the production of spectacular displays, while the women are engaged in the routine tasks of food getting and child rearing. Male values are set upon pride, self-assertion, and harshness. The female attitudes, on the other hand, are governed by a sense of reality, resulting in behavior which is self-effacing and cooperative. In matriarchal tradition, distinctive achievement by a man's young nephew on his sister's side is the occasion for naven, which serve to initiate the boy into the masculine pattern. The outstanding feature of the ceremonies is an exchange of garments, or transvestitism, the men wearing women's apparel and vice versa. Curiously, this behavior is differently motivated in the two sexes. For the boy, the point of the ritual is apparently to emphasize the shameful nature of the feminine role. To express contempt, the maternal uncle dresses himself in the most filthy of widow's weeds. To add insult to injury, the novices themselves are called "wives" and are bullied into the traditional wifely role of submission. Such caricaturing is designed to induce the proper distaste in the eyes of the young men. To Bateson, the fact that such elaborate precautions must be taken in order to ensure the accepted attitude suggests unanalyzed and unacknowledged envy and fear of women.

The women's transvestitism has a very different meaning. The naven provide them with a coveted opportunity of placing themselves for the time being in the position of men. They dress up in male attire, borrowing the very best of feather head-dresses and homicidal ornaments from the menfolk. Not only

do they adopt these male ornaments but some behavioral prerogatives as well, such as entering the usually forbidden ceremonial houses and beating up certain designated relatives. The adoption of these bits of male culture is especially befitting their participation in public theatrical displays which are so foreign to normal female values. On these ceremonial occasions, their behavior approximates the proud and glamorous pattern of the men whose admiration for their transformed women helps to ease the tension between the sexes.

Thus these initiation rituals among the Iatmul serve the double purpose of impressing the boy with the inferior and undesirable status of women and, at the same time, of giving the women an opportunity for self-expression which their workaday lives deny them.

Feminine Protest.—In some primitive groups, where sex roles are sharply differentiated, escapes for those who find it too hard to conform may be institutionalized. For example, among many tribes of Plains Indians, masculine was identified with a warrior role, and the ability to stand any degree of danger or hardship was insisted upon. In these societies a man who found this pattern uncongenial might voluntarily give up the struggle and without seriously damaging social or self-respect become a *berdache*, donning the attire of women, imitating their voices and mannerisms, and following their domestic occupations (81, 368, 476, 581). Figure 17 is a photograph of the Zuñi man-woman, We'wha, who is described as the most remarkable member of the tribe (581, p. 373). "She" was the tallest person in Zuñi as well as the strongest both mentally and physically. An excellent memory was combined with outstanding skill in such crafts as weaving and pottery. The respect that "she" enjoyed during life was expressed after death in granting her burial on the men's side of the cemetery.

It is quite the usual thing for the *berdache* to excel women at their own occupations. Among the Dakotas, for example, the

greatest compliment to a woman is to say that she has "fine possessions like a berdache" (80). The status of the berdache, however, does not correspond exactly with that of women. They can support themselves by the male activity of hunting, and a little of the pattern of male superiority still attaches to them. In general, their social position, although not enviable, is better than that of a man who is a repeated failure as a warrior. This



FIG. 17.—We'wha, a Zuni man-woman. (Courtesy of M. C. Stevenson, *The Zuni Indians*, 23rd. Ann. Rep. Bur. Amer. Ethnol. (1901-1902), Wash., 1904, 37, 373.)

intermediate role provides the necessary safety valve for men who do not fit into the accepted male role, and it even vouchsafes them some measure of respect and prestige in society. Some may be homosexual, but the majority are not, and, although they do not marry women and seldom have sexual relations with them, they have been known to sire many children. Even when they "marry" other men, there is only mild disapproval and this is directed against the husband who is condemned for trying to get

a partner who will not only keep his house but also support him by hunting.

Masculine Protest.—The berdache finds its converse in the "manly-hearted" women found among the Blackfoot Indians of the Northwest. Among the North Piegan they constitute a small group of women of wealth and high social position whose ambition, boldness, and eroticism contrast sharply with the prevailing feminine ideal of submission and reserve (366). Although this culture puts a premium on male dominance, it grants exceptional privileges to these exceptional women. They excel in every important area of tribal life—property ownership, religious, domestic, and sexual affairs. Manly-hearted women often start out as favorite children who receive more toys, food, care, and attention than others. They tend to lead in childhood play groups, to play boys' games, and to appropriate for themselves the names of great warriors. Moreover, they indulge in sex play early in life.

As adults their efficiency and drive make them superior in both men's and women's work. Their ability to take on the economic role of men makes them self-sufficient and gives them an added source of independence. They are better dressed than other women, select dance partners without hesitation, and curse freely when occasion demands. In spite of the fact that they dominate their husbands and expose them to ridicule, their position in the tepee is secure because of their passionate and unconventional sexuality. They allow their husbands sex play that other women refuse and express their dominance in assuming the male position in intercourse. Such privileges are especially remarkable in view of the prevailing ideology of male dominance which includes wife beating, bride price, and a double standard of conduct. The general picture presented by the manly-hearted Piegan woman corresponds to that of high-dominance women of our own culture. An important difference, however, concerns the frequency of their occurrence. Among the North Piegan, with

its male emphasis, such women are rarities while in our society with its gradual shift away from patriachism, they are found more and more commonly.

The related Northern Blackfoot throw further light on women with special status (269)¹. As in Piegan culture, women occupy an inferior position and are even considered to be mentally retarded, poor in memory and comprehension. They are believed capable of performing only the daily chores of cooking, making clothing, and caring for the children. But they sometimes act as healers, and it is admitted that they can on occasion

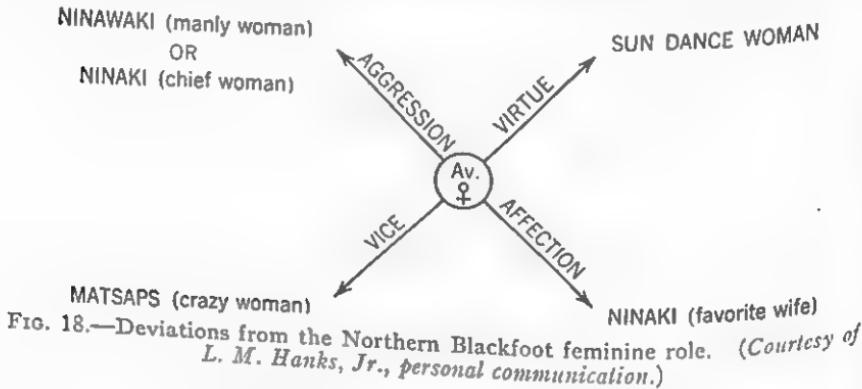


FIG. 18.—Deviations from the Northern Blackfoot feminine role. (Courtesy of L. M. Hanks, Jr., personal communication.)

work miracles. Little girls are brought up with the idea of perfect virtue and are expected to be married not later than the fifteenth year. The typical woman is easygoing and submissive. Deviations from the type may take any of four directions, the resulting exaggerations representing a special status role making the woman a privileged character. The situation is diagrammed in Figure 18 (269):

The *Ninawaki*, which apparently corresponds most closely of all to the Piegan manly-hearts, is a woman in whom aggression has developed to the point where she behaves like a man, as in the case of Mrs. Weasel Calf: "She's supposed to be a brave

¹ In a personal communication, Dr. L. M. Hanks, Jr., kindly made available unpublished material from his field trip with Dr. A. H. Maslow.

woman—a manly woman. She gave my girl Theresa that name so she could be brave too. She went out hunting with her husband. She's supposed to tell your mind and the future." The evidence shows that these women are not bossed by their husbands but handle the household independently.

The *Ninaki* is a respected and able woman, capable of doing the job of chieftainship. In a second meaning, *Ninaki* refers to the favorite wife of a man. As a special sex object, reminiscent of the Marquesan wife, such a woman is spared all the drudgery of the household. She has been groomed for this role since childhood and brought up with special privileges. The Pipe Woman, for example, had many horses, wore a weasel head on her forelock, married with a big dowry. In marriage, she did little easy jobs and was allowed to play with toys. Her husband's brothers and sisters erected the tepee and made the beds for her while she just sat and watched. Obviously only a wealthy man could afford to have one of his wives reserved for him in this way.

The *Matsaps* is a "crazy" woman who dashes around doing sexy things. Mrs. J. K. is a case in point: "She used to be fighting all the time, quarreling with the other women (over their husbands); people didn't like her. She made trouble with all the husbands."

The *Sun Dance Woman*, on the other hand, represents the extreme of virtue. She can never be unfaithful to her husband nor remarry after his death. She is rewarded by the rare honor of giving the sun dance.

By providing these special statuses, the Blackfoot recognizes the wide range of individual variation in women and makes it possible for the atypical to escape the dull domestic routine which is the lot of her normal sisters.

Permanent Sex Reversal.—In the societies we have considered, provision has been made for exceptional individuals who are miscast in the conventional sex roles. We have also discovered

groups that allow opportunity for a temporary exchange of roles through ceremonies. The Mohave Indians go even further than this, granting special status and permitting permanent reversal of roles in the cases of certain homosexuals (174). As in the manly-hearts, only members of prominent families may claim the special privilege of repudiating their sex. Although there is no evidence of genital abnormalities, homosexual tendencies appear in some boys and girls as they approach puberty. At this time, such boys may express a distaste for the warlike pursuits of Mohave men and an attraction toward feminine occupations. They refuse to play with masculine toys and to imitate the riding, hunting, and love-making of adult men. Instead, they play with dolls and ask to wear skirts. Girls with homosexual trends behave in the reverse manner, throwing away their dolls and refusing to shred bark or to perform other feminine tasks. They chum with boys, adopt the masculine ways of the group, and prefer breechcloth to skirts.

Since the transvestite is regarded in a somewhat unfavorable light, families accept these symptoms with resignation rather than joy and prepare for the elaborate ceremonies that will mark the change in the individual's sexual status. The male transvestite, "alyhá," assumes the female role not in dress and name only but, like the berdache, he also learns to imitate the behavior, gestures, and voice of the opposite sex. Such people marry men who are often bisexuals but otherwise normal, assume the female part in intercourse, and despite anatomical normality, insist on a female genital nomenclature. One may intimate that "her" penis is not a clitoris only at the risk of being beaten up by genuinely male muscles. Alyhá go so far in carrying out the illusion of their femininity as to imitate menstruation by inflicting wounds upon their thighs each month and insisting that their husbands submit to the system of taboos surrounding this function. Similarly, they fake pregnancies by stuffing rags and bark under their skirts in increasing quantities to make the

abdomen protrude. The deception terminates in a pseudo parturition and the claim of stillbirth.

Corresponding reversals in role are made by girls who wish to become "hwamé" and play the part of men. Although denying menstrual functions in themselves, they submit as husbands to the taboos of menstruating and pregnant wives. In intercourse they assume the male role and in cases where their wives were pregnant before marriage, they may claim the paternity of the child. Moreover, it is their privilege to sit among the men and boast of their wives' sexual assets. They are, however, denied the opportunity of going on the warpath and fighting like real men for their wives. This social disadvantage is counteracted to some extent by their exceptional industriousness which makes them preferable to a lazy, shiftless man.

The sex reversals represented in this culture as alyhá and hwamé are so thoroughly accepted by the group that the individuals are always referred to by the reversed pronouns, "she" and "he," respectively. Although not encouraged, homosexuals are accepted on a "they-cannot-help-it" basis. Again, as in the case of the berdache, it is the spouse who has to bear the brunt of the teasing which sometimes precipitates divorce.

By granting recognized status to sex deviates, the Mohave wisely localize the disorder and prevent its infecting healthy areas of their society. At the same time, the individuals in question, instead of being outcast, are allowed to participate in the work of the group and to contribute to its welfare.

Cultures that fail to provide acceptable outlets for sex deviates, and at the same time stereotype personalities along sex lines, pay a heavy price in homosexuality. Especially unfortunate in this respect is Western culture with its rigid sex typing and its intolerance for the deviate. So much pressure is placed upon those who cannot conform that many break down. The conflict of living in a homosexual world and attempting to keep up normal appearances becomes insupportable (289). Not only is

the individual caught in a serious conflict, but he cannot seek help without running the risk of arrest, although incarceration is the worst possible treatment for this difficulty. Since the sex criminal is a neurotic, his complaint should be handled psychiatrically (466, 513, 637, 675). It could be prevented by a reformulation of sex roles since a large share of sexual inversion can be traced to the false assumption that a dichotomy in sex temperament is somehow essential and desirable. Our cross-culture comparisons can hardly have failed to show how large a part social factors play in molding sex temperaments. If, in place of the artifact of social sex role, there were substituted the opportunity for each individual to develop his potentialities without regard to sex, we should expect to have a richer society in which each member felt free to follow his particular bent without being branded "masculine" or "feminine." We should also have a society in which homosexuality approached the vanishing point.

CHAPTER X

CHANGING SEX ROLES IN WESTERN CULTURE

PAST DEVELOPMENT

Our comparison among different cultures showed the importance of social setting on sex roles. In order to plan for the future, we need the insight into sex roles in our culture that can come only through historical perspective. Fortunately we have available Goodsell's (242) and Stern's (578) excellent summaries to guide us in evaluating historical material. In preview, we may point out the absence of a steady trend. What we shall actually find is variability from time to time depending on external circumstances.

Antiquity.—The family in the West has always been organized along patriarchal lines, and different times and places have merely varied that basic theme. In ancient Athens, for example, the husband exerted the greatest power over his family. Not only did his wife's dowry and earnings belong to him outright but her person also came completely under his control. Among the Ionian Greeks, women were regarded as a distinctly inferior order of beings, incapable of being companions of their husbands, and they were denied the training and education that would have made them capable. At the age of seven the little boy was sent to school to receive a carefully planned education. The girl, on the contrary, was kept at home and given no instruction except in the homely arts of spinning, weaving, embroidery, and cooking. Having grown up in seclusion, apart from men and remote from all developing social influences, she could hardly emerge at sixteen, ready to be the companion of an experienced man twice

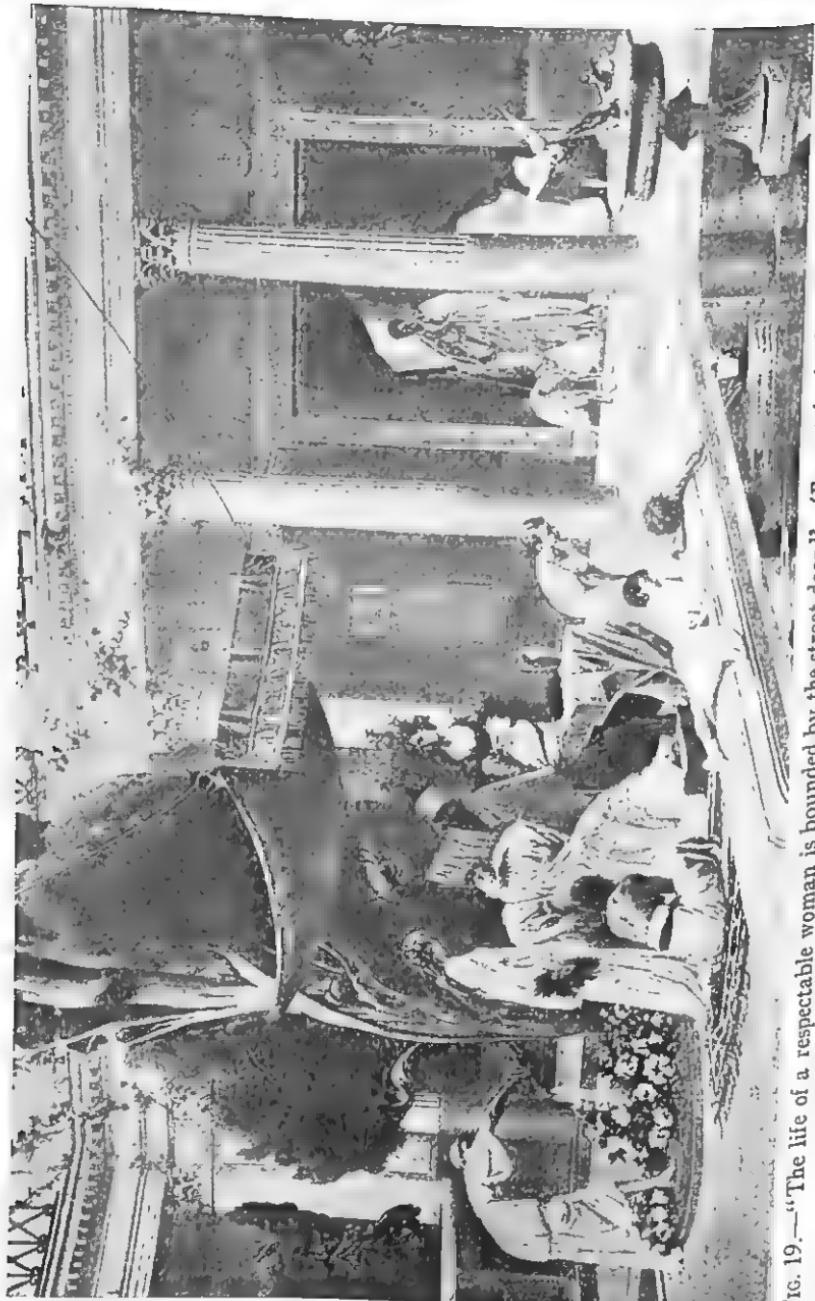


FIG. 19.—“The life of a respectable woman is bounded by the street door.” (From print by G. Boulanger, *The Gynaecum*, Courtesy of New York Public Library.)

her age whom she may not have seen before her wedding day. Indeed she was expected to continue her seclusion after marriage and even in her own home was confined to women's apartments, illustrated in Figure 19. The words of the poet, Menander, were literally true: "The life of a respectable woman is bounded by the street door." It was only foreign-born women like Aspasia, mistress to Pericles, and certain gifted courtesans who were free to move about and who enjoyed the privileges of education. Such women relieved the ennui of wealthy high-ranking men.

In Sparta, women were regarded neither as slaves to sit at home and spin nor as companions for their husbands, but as the mothers of Spartan supermen. To this end girls were given athletic training. They wrestled, boxed, and ran races, sometimes competing with boys. Young people of both sexes were permitted freer contact than in Athens, and even after marriage, the wife was at liberty to go about at will. Supplementing the marital relationship was an idealized male friendship based on aesthetic and religious appreciations. Before battle, sacrifices were made to Eros because safety and victory were presumed to lie in the comradeship of a pair of friends fighting side by side (367). This glorification of male companionship is not only responsible for the homosexuality which has become associated with ancient Sparta but also it served as the model for the *Bruderschaft* of modern Germany.

Rome under the Republic presents somewhat the same picture of male domination as ancient Greece. Women were kept under the perpetual supervision, first of their fathers and later of their husbands, who could sit as judges over them with the power even to condemn them to death in extreme cases. In spite of this legal subordination, the Roman matron enjoyed more latitude than her Greek sister. Her education included elementary school in addition to the inevitable domestic training. After marriage, which was still on a contract rather than a consent basis, she became mistress rather than slave of her household, joined her

husband at table and altar, and was free to go out without his permission. She was treated with the paternalism commonly accorded to subordinate groups.

During the period of conquest, the status of Roman women improved, largely because of the years of freedom and responsibility they enjoyed while their husbands were away fighting the Punic wars. Marriage came to rest wholly on the formal consent of the parties to the union, and the wife was practically independent of her husband, who had no legal power over her conduct. Patrician matrons could afford slaves to perform the household chores while they were free to attend circuses, theaters, and banquets, to beautify their bodies, or to cultivate their minds. Many became writers of verse, literary critics, students of science, and even active forces in politics. They even had the temerity to challenge male prerogatives and thereby to bring down upon themselves a storm of protest from such leaders as Cicero, Cato, and Juvenal. Goodsell makes the significant comment that the woman of Imperial Rome had more in common with the twentieth-century American than with her countrywomen under the Republic. The analogy becomes even more apt day by day as at this writing American women are assuming increasing responsibilities while their men are at war. But it should not be forgotten that women did not maintain the status they had achieved. There was no straight line of progress from the days of the Roman Empire to the present. Women have gone one step forward and two steps backward throughout the history of our culture, and unless we are aware of the determining social factors there is no guarantee that they will hold their gains at present any more than in the past.

Middle Ages and Renaissance.—The Middle Ages ushered in another cycle of changes in the social roles of men and women. The freedom achieved by the Roman woman was denounced by the early Christian fathers as out of keeping with the ideal of sexual asceticism, and women came to be held in very low esteem.

Paradoxically, the convent in early Christendom became a haven for a few gifted unmarried women from the social restrictions which usually surrounded them. Behind the cloistered walls the woman with initiative found opportunities to express her leadership in scholarly works as well as in administrative functions. The lady abbess was virtually a baron—an overlord of an immense property which she held directly from the king (489).

Through marriage a woman came theoretically under the control of her husband, who had the authority to force obedience by physical means if necessary. In practice, however, she enjoyed more prestige by virtue of the fact that the home was the center of industry and the woman kept it going. This was especially true during the periods of warfare when, as in Roman times, much responsibility fell upon her. During these long absences, she was in full charge of the estates, having to attend the sick, fight lawsuits, and even stand siege. The increased self-esteem combined with efficiency and new wealth derived by widows from rich fiefs, elevated the married woman once more to a position of power. Indeed, when the men returned between wars, it was they who, like the Tchambuli ex-warriors, became dependent. Misplaced for the domestic scene, they wasted their time drinking and sleeping until the battle cry sounded again.

Another factor that contributed to the improvement of woman's status at the time and to the ultimate improvement in the relationship between the sexes was the cult of chivalry which made its appearance during the Crusades (517). The adoration of the Virgin in heaven had its counterpart in the adoration of a particular lady on earth. The fact that she was the wife of another, and hence beyond reach, lent a poignancy and desperation to the affair which added no small measure to its charm as the ballads of the times testify. The flattering attentions of the knights were most acceptable to the lonely, emotionally starved women whose marriages had been arranged without regard for congeniality and personal happiness. Passion between man and

woman became a value, an end in itself. The emphasis on the personal, psychological factors in the relationship between the sexes, though at the time considered relevant only to extramarital affairs, contributed to the development of the love-marriage ideal.

Another influence in the same direction was the doctrine of Neoplatonism which flourished in the sixteenth century. This was a cult of spiritual love between man and woman which though frequently slipping from its pedestal helped to bring about the realization that there was no necessary antagonism between love and marriage. During this era married women of the ruling classes were granted some measure of education and, on the whole, enjoyed greater freedom in social intercourse than in the Middle Ages. They were, however, still held in essential subjection to men. Marriage was the only career open to them and obedience to the husband, the order of the day.

Modern Times.—Coming down to modern times, we find further fluctuations in the position of women according to the general social conditions prevailing. At the opening of the seventeenth century, society expected women to take an active part in the national life and, as they had done on similar occasions in the past, they rose to meet the new emergency (577). The struggle for existence in those turbulent times produced a kind of pioneer psychology in both men and women of the emerging middle class. Although the wife was still technically subject to her husband, she was his lieutenant rather than his slave and was trained in some skill that served as an economic asset. In turn, the tradesman considered it his duty to be well informed on domestic affairs. Marriage took on the air of partnership and women were allowed to display qualities of courage, initiative, resourcefulness, and wit which had been denied expression during the long eras of male domination.

The Restoration was less kind to its women. Before the century was out, they had suffered a serious setback. With the

rise of capitalism and the competition for jobs that it entailed, women no longer shared directly in production and had no interchangeable basis for support. Many functions were taken out of the home without allowing the women to follow them. The new order even failed to recognize women's age-long priority in the fields of healing and teaching. Raised professional standards, depending on the higher education denied to them, put these occupations beyond their reach. Thus they were left with empty hands, held captive within the four walls of their homes. No wonder their physiques and personalities took on a prison pallor in comparison with those of their vigorous grandmothers. As in all eras, class lines cut across sex lines, with the result that women of the aristocracy enjoyed privileges denied the men as well as the women of the submerged groups. Within each class, however, women have always been at a disadvantage in comparison with men. These times were no exception, and among the poor they were exploited as cheap labor for profit-making purposes, thus indirectly contributing to the unearned leisure of the rich. Their status within their own families, however, improved because of their economic help and the mutual hardships which demanded a rough and ready equality between man and wife (579). The restriction of women's activities in times of reaction is illustrated in Figure 20 which suggests a parallel between their role in ancient Greece and under early capitalism.

By the eighteenth century the deterioration of woman's status was complete. The ideal of feminine charm included passive docility and clinging dependence on men. The practice of female parasitism spread through all except the lowest classes until work came to be regarded as a misfortune and disgrace instead of a source of dignity and independence. Meanwhile in the colonies, despite the autocratic legal powers of the father and the theoretical subjection of women, the harsh conditions of frontier life proved to be a leveling influence which gradually undermined

the patriarchal tradition and raised the status of wife and child within the family.

During the nineteenth century women gradually became more articulate concerning their rights and responsibilities. Although Victorian ladies led extremely sheltered lives, with fainting and



FIG. 20a.—Restriction of woman's sphere in reactionary times—ancient Greece. (From a print of *Ordinary Greek Dress*, London, Religious Tract Society, 1890, Courtesy of New York Public Library.)

pinning away still the vogue, individualism was in the air. Efforts of particularly enterprising women like Lucy Stone launched the early self-consciously militant "woman's movement." Since those days women have gradually been freed from the onus of legal dominance by their husbands and have had political and educational opportunities extended to them. That they have

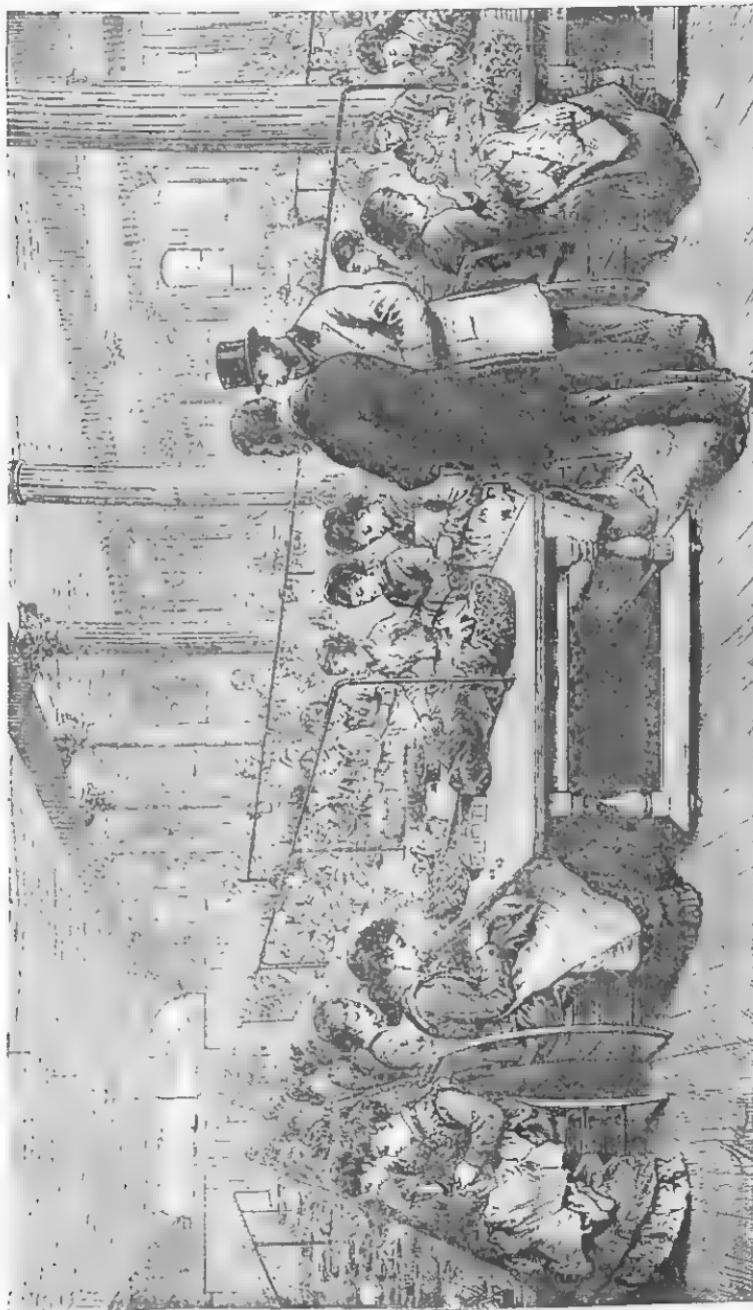


FIG. 20b.—Restriction of woman's sphere in reactionary times—early capitalism. (*From a print of the woodcut, "Seamstresses Worked 10-12 Hours per Day," Courtesy of Culver's.*)

failed to take full advantage of these opportunities may be attributed to the uncertainties and ambiguities of their position in contemporary life.

This brief survey of the changing roles of men and women during the development of Western culture reveals their dependence on the general social setting. Within the framework of patriarchal family structure, the position of women has fluctuated. Because of the equalizing effects of adversity, which we have just noted, changes have always been less conspicuous at the lower than at the upper extremes of society. The poor women have had to share work and hardship with their men in all eras. It was the women of the aristocracy whose individuality and independence waxed and waned according to the general social climate. In times of liberal humanitarian movements, patriachism has declined, women have been appreciated as people, and their range of influence has been extended. In times of emergency their necessity has been unquestionably accepted, and they have always proved equal to the task. But no matter how bright their prospect in times of opportunity, they have always unconditionally surrendered and retreated into the home at the first sign of reaction.

CONTEMPORARY CONTINENTAL TRENDS

The trends we have noted are nowhere more beautifully illustrated than in contemporary societies. In authoritarian groups with their social hierarchies the male-female gradient is steepest. Power is vested in the males, and women together with children and animals are subjugated. Male homoerotic attachments flourish because men enjoy the higher social ranks while the subordinated women are despised (224). Such was the German tradition before the First World War. That it is cultural rather than racial is indicated by the change that came with the changed social pattern of the Weimar days. No more inspiring picture of a class rising victorious in its struggle against oppression can

be found than the women of Germany under the Republic. As a result of the vigorous *Frauenbewegung*, women were enabled to share with men in every phase of life (257, 487, 635). The universities welcomed them and in turn opened up all the professions. This represented an amazing transformation over the situation that held during the nineteenth century. Under the Republic, *none but the National Socialists* had the temerity to support the Kaiser's KKK slogan of *Kinder, Küche, Kirche*, for women. Indeed her new status and role seemed at last permanently entrenched and lured even the most discerning into such wishful thinking. In view of subsequent events, the confidence expressed in the following quotation (635, pp. 262-263) acquires a poignancy never dreamed of by its author writing in 1933:

Not if Hindenburg and Von Schleicher and Hitler should decree a return to the old order tomorrow could these castes and social distinctions be wholly restored. . . . Least of all could they restore women to their prewar status: the current of fundamental world change which has overnight enfranchised women in Spain and freed the women of Turkey from the veil, the harem, and legalized polygamy, would alone prevent any reestablishment in Germany of a system which is as dead as the kingdom of the Pharaohs.

Under the Third Reich the incredible happened. Reaction in the social structure as a whole undermined the progress women had previously achieved and led to a baser degradation than they had ever experienced in the history of Western civilization. Her world as defined by Hitler was restricted to "her husband, her family, her children, and her house" (295, pp. 287-288). All women were to be fitted into a single mold on the assumption of a universal maternal feeling and unlimited wifely docility (337). Her primary role in the New Order was to breed potential soldiers. Her education had to be directed toward this goal and therefore differed from that of boys. As in ancient Sparta this involved a maximum of physical, combined with a minimum of intellectual

training. In an effort to raise the birth rate, anticontraceptive legislation was introduced.

Women were regarded as the source of nourishment not only in their capacity as breeders of German men but also as tillers of German soil. They were to be strong peasants as well as strong mothers. As part of the double training for the role of housewife and peasant, compulsory labor camps were instituted. They sent out young women to help with heavy work on the farm in the belief that "Folk-centered labor service is the best political education for girls as it teaches them the true mission and place of the German woman, the blessings of work in close relationship to children, animals, and nature" (326). Actually this amounted to putting all German women in the position of the virtual slavery which applied to the domestic servants of an earlier era.

For the unmarried woman only those occupations were open which were deemed appropriate to the Nazi conception of "female nature" (102). During the depression, professional women suffered heavily through loss of position and opportunity although their proletarian sisters as in other times and places were once again exploited as cheap labor (334). With the onset of the present war, the wholesale discharges had to be checked and the movement reversed for the duration. The war, however, was no more than an armistice in the fight against women. Even under emergency conditions the employer was not permitted to forget sex differences in social roles. He was advised to bear constantly in mind that, while employment of women was indispensable, they were not naturally adapted to life of that sort. Their work should be simple and mechanical. Moreover, women should be under male supervision because they take orders more readily from a man (28). Demobilization would presumably put an end to employment of female workers engaged to replace men (29).

Under the Nazi regime, the romanticizing of male friendship to which we have referred was exalted at woman's expense.

The glorious role of man in contrast to the humble role of woman was that of a warrior like the heroic Siegfried. As a member of the *Hiller-Jugend*, the cult of the Führer was instilled in every youth. According to this notion, the state is founded on a male league in which warriors are linked together by loyalties nobler than the emotions men feel for women and more nearly resembling the worship of a god. These emotions were often expressed in frank unsublimated homosexuality which might even be encouraged in its own right. Decadence, however, would result from the participation of women (96, 551, 634).

This glimpse of changing roles of men and women in Germany may suffice to show their dependence on the general social context. The democratic climate of the Weimar Republic permeated every area of life, expressing itself in an equalitarian relationship between the sexes. Autocracy under National Socialism reversed this tendency, vesting authority in men and lowering the status of women.

An even more extreme differentiation between male and female is found in Japan, where Orient blends with Occident. Gorer's (243) analysis of the Japanese character structure through personal interviews with adults living in the United States throws important light on the problem of sex roles. From earliest childhood, different demands are made of boys and girls. Girls must learn to express passivity through appropriate gestures, postures, and language. "Like a boy" is the worst insult a girl can receive. But there is no converse for the boy, because he is regarded as so superior to any girl that there is no equivalent for sissy. The boy must find his place in the dominance hierarchy. Toward his father, elder brothers, and teachers passive compliance is expected. Toward those lower in the scale he may display aggression. This includes all women without regard to age or social status. Toward his mother, sister, or nurse there are no limits to the violence he is permitted up to school age. He may with impunity kick them, bite them, or break their

lovely hair ornaments. Although the tantrums are curbed after he starts to school, aggression toward women is always rewarded. Woman's role is to service men by providing physical satisfactions and to yield to their demands.

Contrasting social structures bring with them contrasting patterning of sex roles. The Russian revolution represented the overthrow of authoritarianism under the czars and an attempt to concentrate power in the hands of the workers. The aim was to socialize industry and to raise the standard of living of all workers, women as well as men (631). Women were to share equally in the privileges and responsibilities of production. Despite a long tradition of subjection and much resistance, even from the women themselves, the main objectives were achieved. The new freedom for women was attained not through a feminist movement fighting against men but in the course of a much larger struggle—a struggle of both men and women for a new way of life (663). It was the men who supported the women and spurred them on until they not only became a vital part of the movement but even rose to the highest positions (200, 291). Under a system in which one must work to live, it is idleness, not work, that is degrading, and it is just as degrading for a woman as for a man. The sexes share equally in all opportunities for work. They enjoy the same education, payment, rest, leisure, and social insurance. Moreover, married women are granted special compensations instead of the usual penalizations. Child-bearing is regarded as a functional expense in the performance of public duty. Moreover, the woman is granted a leave of absence from her job with a guarantee of reinstatement after childbirth. Proper care is assured the baby through nurseries provided by the industry (647, 657). Figure 21 illustrates a crèche in a large industrial plant in Kharkov.

Even more important than the political, cultural, or economic freedom of woman is her new emotional independence. In no sphere are greater liberties or advantages accorded men than

women. Even in the most intimate domain of sex relations, woman is treated as an adult with complete freedom of action. There is but a single standard in the new morality.

Sex is no longer sacred or profane, but natural. It has been an intrinsic part of an individual's life since nursery days, with no special importance attached to it through mystery. Therefore,



FIG. 21.—Time out for mother workers at the Kharkov traction plant to nurse their babies. (*Courtesy of Sovfoto.*)

it has not become the focus of neurotic anxiety nor tied up with a need for security. It is free to serve as a vital, constructive emotional bond between a man and a woman. The freedom from restriction instead of exaggerating the importance of sex has so reduced tension in that direction that pornography, perversions, prostitution, and venereal disease are rapidly disappearing (46, 657). So conspicuous is this change that an American visitor was led to remark in 1932, "One thing that

pleased me in Russia: I had a rest from sex" (510). Sex is an important but not an exclusive value in Soviet Russia. It does not absorb theater, cinema, literature, art, or indeed any phase of life (186). Promiscuity is disapproved of and monogamous marriage is the ideal there as here but with an important difference: Russian marriage, freed from economic complications, is based more exclusively on love and companionship. The young Russian men have enjoyed the new freedom of the young women no less than the women themselves because it increased the range of their mutual interests. In fact one of the chief obstacles in the attainment of sex equality was the sluggishness of the women to relinquish old customs and awaken to their new opportunities and responsibilities (181).

The family has necessarily shared in the benefits derived from the changed relationship between the sexes. No longer is there a patriarch whose word is law. No longer are children seen and not heard. Instead, there is a little group of people of assorted ages and sexes who are bound together by ties of personal intimacy. The socialization of many of the physical functions, previously performed in the home, leaves time for the cultivation of the more important psychological companionship (248).

Among the Moslems in the Soviet East, women were scarcely regarded as human. They were sold to their husbands in childhood and made to work as slaves. On the husband's death, the widow became legally the property of the nearest relative, along with domestic utensils, livestock, and other possessions (647). Against this background, progress was necessarily uphill work. The story of reforms in the Eastern Soviets is a dramatic one, dramatically told by Fanina Halle (254). New institutions had to be devised as mediums for the dissemination of new ideas. The early workers had to veil themselves to gain the confidence of the Oriental women. At first they made their contacts in public baths and on the streets. Later, the women's clubs provided a means of overcoming timidity and encouraging them to

unveil in one another's presence. Little by little, resistance to change has yielded to the persistent and often heroic efforts of the Soviet underground. So revolutionary have been the achievements of the newly awakened Eastern women that they have in some cases "gone to their heads" and led to an over-valuation of their sex. An interesting example of a reversal of Western prejudice is the case of a political executive in Uzbekistan who was dissatisfied with her male physician not because he was incompetent but because she felt certain that a woman would be better.

Released from the accumulated tradition of centuries, the men and women of the U.S.S.R. have been free to work out a way of living adapted to current needs. The war has tested them and found them strong. No small share of the credit for the splendid example they have set the world is due to the women who have had to man the vital industries and have even accompanied their men to battle. What the postwar picture will be is difficult to predict. Rumors of reaction, of sending women back to the home and of abandoning coeducation in favor of differential training, may be based on the need to rebuild the depleted population. It is also conceivable that these disquieting rumors may represent a reaction of both sexes from the over-emphasis on power and a longing for the softer moods of peace. Unless the economic structure reverts to capitalism, we need not fear a lowering of women's status.

THE AMERICAN SCENE

Turning to prewar middle-class America, the authoritarian form was retained although democratic influences were gradually changing the content. A clear portrayal of the situation appears in the Lynds' cross section of the typical city, *Middletown* (378). Here as late as 1924, we find men and women widely separated in social role. Marriage is a blend of the tradition of family contract and romance. It is presumed to result from an unana-

lyzable mystery. Behind the mystery, however, lies tactful direction of designing parents. Upon marriage, the young couple make a home of their own, but the patriarchal mold survives in the woman's exchanging the name of her father for the name of her husband. This is reminiscent of the Roman Republic when the girl passed from the hand of father to that of husband. More reminiscent of those ancient times are the lack of companionship and community of interest between husband and wife. In mixed social gatherings, the men and women frequently gravitate apart, or the men do most of the talking while the women lend a respectful ear. This social sex distance is the product of a differentiation in roles. In short, the husband provides a good living while the wife provides a good home to live in. The Lynds point out that the worlds of the two sexes constitute something akin to separate subcultures. The woman's world lies within the household and involves care and teaching of small children, always with male authority in the background.

The sharp cleavage in sex roles has led to a discounting of the broad socializing values of education for women. As one Middletowner expressed the typical attitude: "The thing girls get from high school is the ability to know how to choose a 'real one' from a 'near one.'" It has also led to the assumption that men and women must be very different kinds of people. Men are considered stronger, bolder, more logical and reasonable, but as needing coddling and reassurance. Women, on the other hand, though more delicate physically, are presumed to be stronger morally; they are purer, more refined, more sympathetic, and more sensitive. The prevailing attitude accepted by women as well as men is beautifully summed up in the motto of the local federated women's club: "Men are God's trees; women are His flowers." It is hardly to be doubted that men and women, subjected to such totally different cultural influences, are molded into two totally different personality patterns. The fallacy lies in the assumption that such differences are intrinsic in the

biology of sex and therefore justify differential treatment, when actually they *result* from such treatment.

A decade after the original study of Middletown, to all external appearances, the social roles of the sexes had not changed (379). Dorothy Dix was still extolling the tradition of subordination for women. But the depression was seriously threatening the old tradition by preventing many men from providing for their families and making it necessary for many wives, especially among working-class groups, to contribute to the family earnings. Under such circumstances, the rigid dichotomy of sex roles could not be maintained and we find more participation of men in the home and of women outside it. Aside from the depression, there was some trend away from tradition. In keeping with smaller families and a rise in both physical and psychological standards of living, women's place was actually less exclusively confined to the home and careers were opening up alternative paths. Significant of this tendency was the growing talk among high-school girls of working after graduation rather than "just marrying and settling down."

In spite of this shift in emphasis, the basic pattern remained unaltered. Until the Second World War, the male was still being trained for dominance while the female was oriented toward domestic and service roles. What was true of Middletown was true with local variation of the middle class throughout the country. The sex dichotomy was transmitted throughout the culture by an extensive system of differentiation to which, as we shall see in the following chapter, the developing child was exposed with his first breath.

CHAPTER XI

CHILDHOOD SEXUAL DEVELOPMENT

Human sexual behavior can be understood only when seen as a part of the total personality, which in turn reflects the cultural pattern. This is not to deny the instinctive basis of the sex drive but merely to point out the importance of the social channeling that determines its course. Insofar as sex membership determines the social role that the individual plays in the group, we shall find that cultural factors carry even more weight. Surveying the available scientific evidence from this viewpoint, we may trace the stages of psychosexual growth in our culture, or at least in the middleclass segment of that culture which has provided most of our material.

PRESEXUAL EROTICISM

Oral.—Before the baby has become oriented toward his world, his interests are largely bounded by his physical organism. The most important activity in his life is sucking. Around this function are centered his keenest satisfactions or his bitterest frustrations. Let the sucking time be curtailed, even though he has received sufficient food, he will resort to the substitute satisfaction of sucking his finger (362). This may easily become habitual and carry over as a solace for the frustrations of childhood, appearing as a regression in socially immature individuals of any age (352). The relative infrequency of thumb-sucking among primitives is probably accounted for by the fact that in most groups children are suckled whenever they cry. The interesting psychoanalytic theory that the child whose early sucking experiences are unsatisfactory finds it difficult to accept

life as an adult and is inclined to feel cheated out of his birthright (481) has not yet been experimentally substantiated. There is at hand, however, anthropological evidence showing sharp personality contrasts between people reared in child-centered as opposed to ego-centered cultures (409). The gentle, peaceful natures of the Arapesh have been in part attributed to their prolonged nursing, while Mundugumor hostility may equally well be traced to early feeding frustrations. Insofar as differences in mature personality are associated with infantile sucking activities, it is most likely that the important psychological frustration is not the withdrawal of the nipple as such but an accompanying withdrawal of love and security.

Excretory.—With the introduction of bowel and bladder training, the infant's attention is necessarily concentrated on the structures and functions of excretion. Again, it would seem as though the intrinsic satisfactions and frustrations associated with these processes were less important to his psychosexual growth than the social rewards and punishments meted out to him for his performance. Any ramifications to his adult personality structure should be sought in this area rather than in the individual's preoccupation with excretion as such. Whether the child will develop a healthy, natural attitude toward these biological functions depends on the attitudes prevailing in his immediate environment. This point was convincingly brought out in a study on mixed groups of three- and four-year-old children attending nursery school (182). Careful observations were made in the dressing room. In most cases excretory behavior was matter of fact, with a refreshing absence of any sense of impropriety. Certain cases of excessive modesty, however, could be attributed to pruderies observed at home. A striking instance of repressive environment concerned a game of rectal temperature which became a fad among the younger group. Adult disapproval enhanced the fascination, which, however, quickly waned with casual treatment. The *older* group of children who

had absorbed the general cultural taboo adopted the game and secretly indulged in it with unabated zest. In primitive groups which allow natural expression to natural functions, such a pastime would be unlikely to occur. We may recall that among the Arapesh where children wear no clothes until four or five years of age, physiological functions are accepted without shame or embarrassment. Thus we find that even the lowly processes of excretion are brought under the sway of culture and through repression may acquire an emotional coloring out of all proportion to their intrinsic interest. Moreover, anxieties centering around early toilet training may carry over to the sex area because of the close topographical association between excretory and genital organs. Sexual aversions in later life often have their origin in excretory taboos (229).

Genital.—Long before the genitals are capable of reproductive function they have become a focus of interest to the child. The association with the excretory organs attracts attention to them. Moreover, they are intrinsically highly stimulable, giving rise to spontaneous erections in boys within the first two years (146, 149). There is also a correlation between sexual and sucking activities at this early undifferentiated stage. On the one hand, genital tension indicated by tumescence has been found to occur under frustrating feeding conditions, such as difficult nipple, delay in feeding, or withholding the breast (255). On the other hand, the comforting finger sucking is sometimes accompanied by a rubbing contact with the genitals or other sensitive zones (327). Thus the tensions and satisfactions associated with one region seem to be readily interchangeable with others and presumably have much the same pleasant but diffuse hedonic tone. The Freudian contention that finger sucking is equivalent to masturbation may sound to the layman extreme if not absurd because of the specific eroticism connoted by masturbation. To put it the other way around, however, and say that infantile genital manipulation is the equivalent of finger sucking more

adequately expresses the polymorphous nature of these primitive physical pleasures. As the child grows older, if he does not drop his infantile sucking habit, it may become a masked form of masturbation with genuine erotic quality. In one instance a normal seven-year-old girl compared the joys of a forbidden sucking habit with kisses from a loved one, describing the experience as a "going all through your body" (227). Among the Arapesh, elaborate forms of lip play seem to serve as masturbation substitutes. The tremendous importance attached to feeding activities among these people focuses interest on the lips rather than the genitals (409).

Before proceeding to a consideration of the more socialized forms of sexual behavior, we should point out the possibility that all forms of autoeroticism, whether oral, excretory, or genital, probably represent an important phase of psychological weaning. Kardiner's analysis of the Marquesans, a group remarkably free from frigidity and impotence, led him to the conclusion that autoerotic practices in the young child help him to liquidate his dependence upon his mother and to build up his confidence in himself (319). Such observations suggest the need of a reexamination of attitudes current in our society.

SEXUAL SOCIALIZATION

Family Ties.—As soon as mental growth permits, the child awakens socially and begins to notice other individuals. The satisfactions that were once exclusively associated with the functioning of his own body become transferred to those who minister to his bodily needs. Because of the closely knit character of our family organization, no one can deny the importance of the emotional bonds formed in childhood. It is in the family that the child first learns to love as well as to be loved (97). Here he makes his first social overtures, and the success of these early relationships determines to a large extent the success of later relationships. The danger in our society lies in their

becoming emotionally too restricting. According to Freud, an important step in sexual development consists in the child's attachment to the parent of opposite sex (184). This is assumed to leave the like-sexed parent in the anomalous position of being hated as a powerful rival and at the same time loved as an object of emulation. There is little positive support for this Oedipus myth in current data on normal children. Unfortunately the scientific evidence is based on children five years of age and older when, according to Freudian theory, the Oedipus attachments become repressed. Preference for the mother on the part of both boys and girls has been revealed in a variety of ways. She is given top rank as companion on a desert island and at the circus (429). In comparison with the father, more wishes are expressed for her welfare and more "best" happenings are associated with her (314). Reactions to stories and pictures afford further evidence of her greater popularity with young children (441, 557). We need not seek the explanation in genetic factors but in the homely circumstances of everyday life. The child prefers the parent who plays most and punishes least; who gives the most attention and makes the fewest demands. In Western culture this parent has more often been the mother, although in the American family there is an increasing tendency for the mother to dominate. There are cultures where children of both sexes prefer the father. Among the Manus, as we have noted, it is the father who is the tender, solicitous, indulgent guardian while the mother is the disciplinarian. In cases of dispute, the husband will always side with the children against the wife (407).

Among older children in our society there does not seem to be unanimous preference for the mother. In one experiment, the parent of opposite sex seemed to be favored on a free association test by a ten- to thirteen-year-old group. A more interesting finding was that the girls, who tended toward overdependence, reacted more positively to both parents than the more self-reliant boys (414).

By the time college age is reached, similar attitudes tend to be

expressed toward both parents, according to the results of one careful investigation (573). Whether the attitude was favorable or unfavorable seemed to be a function of the subject's personality make-up. Self-sufficient children were likely to take a less favorable attitude than the more dependent individuals. Perhaps this is a reflection of the increasing objectivity with which the family is viewed as one grows up. The self-sufficient group, representing greater emotional maturity, would be the ones to hold the more critical attitudes.

The important question for normal psychosexual growth seems not to concern *which* parent is preferred or whether or not the child goes through an Oedipean stage, but whether he has warm affectionate ties with both parents during the period of emotional dependency. The small son learns through his affection for his mother to grow to masculine ways of feeling toward other women. At the same time his admiration for his father enables him to develop a masculine concept of himself. The father's participation in the emotional guidance of his son is especially valuable in this development. In the case of the little girl, an early warm companionship with her father is a preparation for later adjustments to men and boys. To the extent that her mother enjoys her own femininity, the daughter will find in her an appropriate model for her own developing womanliness (696).

As the child's social world expands, these early parental attachments are naturally and gradually outgrown and replaced by relationships with people outside the family circle. Fixation at the infantile level makes further emotional growth impossible and spells failure in any mature relationship. The following suicide note left by a forty-five-year-old man who was unable to free himself from mother fixation gives eloquent testimony to this fact (527, p. 172):

DEAR MOTHER,

I regret very much the act which I am about to commit, and I hope that you will not feel too badly about it. You will take comfort in the fact that I have always been a pure boy.

Early Sex Impressions.—An early trend of sexual interest outside the home concerns playmates. As part of the process of becoming acquainted with his own body, the child naturally compares it with those of adults and other children (148). Some of his earliest sexual knowledge concerns physical sex differences (279). Differences in urination posture arouse curiosity (147) and occasional attempts on the part of girls to imitate boys. In a group of 200 children interviewed through the medium of doll play, it appeared that three-quarters of those under eleven years of age had seen the genitals of the opposite sex (144). Although unprepared at the time of their first experience with physical sex differences, the facts were accepted by most without shock or resistance and were assimilated smoothly with other experiences of everyday living. Only a small proportion of those recalling their initial contact expressed a feeling that something was wrong with what they had seen. Cases in which this first experience was forgotten might possibly be attributed to repression. In the light of the positive evidence presented, however, it seems much more likely that the forgetting was an index of the casualness with which the information was received. Freudians, it is true, cite contrary material indicating the expected castration fears and penis envies (361). Whether such cases more readily find their way to the analyst's couch or whether the analyst in his enthusiasm for Freudian theory inadvertently suggests to his young patients the anticipated complexes, is an open question.

The only evidence of emotional conflict among the groups of normal children under investigation could be traced to adult attitudes and had to do with naming the various parts of the body. Apparently the facts of life were accepted naturally enough by the child, but the symbols representing them carried an onus of shame and led to embarrassment (146). The symbols usually assigned to the genitals are so special and different from the commonplace names of other parts of the body that they

acquire a secret and sinister atmosphere which is communicated to the child. But perhaps even more important than their intrinsic mystery is the unverbalized sense of sin which is imparted to him along with the words.

The very great harm parents can unwittingly do their children by inculcating faulty sex attitudes is strikingly illustrated by Woolley's staircase phobia in a girl of three (668):

The parents, thinking the child too young to understand, had failed to discuss the birth of a new baby with her. Puzzled and disturbed by the event but feeling that she must not ask questions, the little girl suppressed her anxiety as well as she could. Each day as she left the hospital after visiting mother and baby, the first object she encountered was the stair railing, which came to symbolize the whole situation and to arouse her fear. A similar staircase at the nursery school produced the same response, thereby attracting the teachers' attention to the phobia. With the parents' cooperation, the child was given the information she so badly needed and the fear disappeared.

A more recent example of a similar sort may be found in the story of Anna, an eleven-year-old Swedish girl whose expressed complaint was headache and school failure (606).¹ Analysis revealed the following:

Anna's natural curiosity about the origin of babies was not satisfied because of her parents' disapproving attitude. This led to her brooding over sexual matters, especially over the idea of her parents' living together. Headache developed and was interpreted as a punishment for and protection against her sexual curiosity. In fact all curiosity was repressed because of its possible connection with sex. Hence in spite of her intellectual brightness she began failing in her studies. She hated her schoolmates because they did not need to repress their sexual interest but were free to primp, flirt, etc. After analysis, in which the mechanism of her difficulties was made clear, her headache disappeared and she was able to take an interest again in things other than the sexual.

Early Sex Aggressions.—Many children experience sexual aggressions by adults, which have usually been assumed to

¹ Translated from the Swedish by Miss Ingegerd Anderson, Connecticut College.

endanger normal development (339). In a study of sexual behavior in a large group of normal and abnormal women no causal connection could be traced between the abnormality and the early sexual episodes. Apparently aggressions occurring before puberty did not predispose the individual toward the development of mental disorders in adult life (349). It has been found, however, that they sometimes leave in their wake negative attitudes toward sex which are unfavorable for marital happiness and in certain cases they may lead to homosexuality (202, 259, 285).

Because of the importance of the immediate family to the young child, incestuous aggressions, at least, might be expected to constitute a serious threat to later adjustment. Again scientific evidence fails to reveal the universal damage anticipated. Whether incestuous attacks produce traumatic effects or not seems to depend on the personality of the child at the time of the incident (349, 562). Provided that he feels basically wanted and loved he can absorb a great deal of shock.

In general, the available scientific data tend to underemphasize the importance of prepubertal sex aggressions for later adjustment. Indeed, in some cases, far from being the pitiable victim of sexual attack, the child himself has acted as aggressor, apparently deriving positive satisfaction from the experience with no trace of guilt or anxiety (75).

EMERGING SEX ROLES

Awareness of Sex Differences in Social Role.—Along with his awareness of genital differences the little child becomes aware of what is expected of him as a member of his sex group. Sexual status and color caste share the distinction of being the only life-long forms of rank in our society (166). Which one predominates depends on the structure of the population under consideration. In a study of school children in a border state where race consciousness runs high, the racial barrier proved more powerful

(299). On the other hand, sex cleavage was found greater in a Brooklyn public school where the Negroes outnumbered the Whites. In this situation a white boy almost invariably preferred a colored boy to a white girl even in classes containing only one white boy and girl. In most classes the sexes formed virtually separate groups (161). Comparable results were recently obtained in a study in which the relative importance of race, sex, and facial expression was determined. Again the racial factor was secondary to sex in determining the choice of playmate (281).

Sex Models in the Home.—Sex typing of personality and privilege becomes an important means of social control, and infractions of the code are severely punished (166). The individual is trained to his sex role from the moment of birth when girls are placed in pink, boys in blue bassinets. Awareness of sex-appropriate conduct makes its appearance early in life through observation and imitation of models in the home (204). Some unpublished observations by one of the writer's students (424) on a nursery-school group show an increasing awareness of sex roles between the ages of two and three. Through picture choices the older children revealed a greater acceptance of father as a man of business and in the dominant role within the family. They were also aware of the inappropriateness of boys' playing with dolls, which the younger group failed to recognize. An indication of the importance of cultural influences was the approval of the working mother, which presumably reflected the wartime pattern.

Sex models in the home must be appropriate *as long as society persists in stereotyping sex roles.* Domineering mothers and ineffectual fathers are likely to produce a younger generation of tomboys and sissies (204, 286). Deviant sexual orientation in later life may originate in the child's inability to identify himself with his like-sexed parent (258). Absence of the father or fear of him frequently results in a passivity in boys and a tendency on their part to imitate the attitudes, interests, and manners of

the mother. Converse attachments may be built up in girls. In either sex, cross-parent identifications are often the cause of maladjustment in sex role and heterosexual inadequacy in adult life (464, 465). Many of the psychological factors we have considered are illustrated in the following case of an adult male homosexual (49):

Q. W. A forty-eight-year old successful musician, living alone in New York. His father was a businessman who was a stern disciplinarian, stressing religion and giving Q. W. little companionship. His mother died while he was a young child but his grandmother, an affectionate, motherly person, took her place. His homosexual trends appeared at an early age. He was a typical "sissy," preferring to play with girls and liking to dress up in their clothes. He decided on a musical career through the influence of a woman teacher. He uncompromisingly rejected the idea of becoming either a businessman or a minister, which represented two outstanding values of his father.

His first overt homosexual experience occurred during his musical study in Europe. Since then he has had a number of similar affairs, always with upper-class people. He is a charming personality, attractive to both men and women. At one time he became engaged to a woman but had to break it off because of his inability to make the appropriate emotional response.

Q. W.'s sexual inversion is reflected in his interests and in his scores on various tests. His M-F score is closer to the female than to the male average. Moreover, his verbal ability is unusually high and is expressed in voracious reading. Artistic interests are indicated by his high rating on aesthetic values. On tests of emotional response, he proves to be unstable, introverted, submissive, and self-conscious.

Professional success has counteracted to a large extent the ill effects of his sexual inversion, so that he has been able to make a satisfactory life adjustment.

Not only does the family have the responsibility of providing the child with appropriate sex models, it also provides him with his first tryouts of his sex role. Frank points out that the little boy should be able to play up to his mother and have his attentions appreciated. If she makes him feel that the male's interest in sex is repulsive to women, she may block his psychosexual

development. On the other hand, if she is possessive she may also arrest his development by preventing him from reaching out toward other members of the opposite sex. The girl in turn learns how to be womanly through her early relationship with her father. His approval and admiration of her as a young woman help her to take a positive attitude toward her sex membership (213). Irreparable harm can be done by disappointed parents in their futile attempts to thrust on the child the role of the other sex. Little boys whose baby curls are kept too long or who are dressed up in sister's clothes for the amusement and admiration of female relatives are potential recruits for the army of home-made homosexuals. Analogous misdirection is an even more frequent occurrence in the case of girls, owing to the higher evaluation placed on males in Western culture. This was the situation in which Nancy grew up (318):

Her father was an athletic coach who had wanted a son rather than a daughter. Her mother had not wanted any children and resented the handicaps of motherhood. In this family everything desirable was on the side of being male. Naturally Nancy preferred the idea of being a boy and felt greater warmth from her father, although she needed actually to be a boy to make this complete. She wore shorts, insisted that other children call her "Bill," and refused to play the role of mother or little girl. As a result of her attitude, she found herself in conflict everywhere.

Social Training for Sex Role.—Early successful family training is greatly reinforced by the sex typing controls to which the child is subjected in school. His prestige depends on his learning the sex appropriate code in the various areas of clothing, hairdress, gait, voice, language, interests, and behavior. At an early age the little boy's interest in the world of action is reflected in his preference for trains, cars, horses, and blocks, in contrast to the girl's fondness for beads, dolls, and house (82, 478). Self-expression in plastics revealed the same sex differentiation at the nursery-school level. The boys' products ran to tools, construction, and transportation while for the girls, people, furniture,

dishes, and food predominated (421). Comparison with other groups reveals the cultural origin of such sex differences. We may recall that among Manus children it was the boys who played with dolls. In our culture, interest in dolls is sometimes persistent in the boy and must be brought in line with acceptable masculine standards through interpretation. Zachry cites the case of one little boy whose desire to play with his big sister's discarded dolls would not be downed. In this crisis the mother hit on the solution that he might play father to them. Thereupon he was overheard addressing them as follows (696, p. 78). "Children, I'm so glad your mother is dead. Now I can have you all to myself."

Sex typing of personality parallels this sex typing of interests. Hattwick, in confirmation of earlier observations (244), found that boys of nursery-school age were more extroverted, aggressive, and difficult to handle in comparison with girls (280). In evaluating these results it is very difficult to determine how much weight should be given to constitutional sex differences in ability to mobilize energy in comparison with cultural sex differences in expected behavior. The marked shifts in pattern at different age levels suggests a preponderant influence by social factors.

During the early school grades, the "real boy" appears to be good at games, is popular, is not easily scared, and may even be bossy at times. The "little lady," in contrast, is also a good sport, is popular, but is not especially proficient at games. She sits quietly in class and, above all, does not quarrel (380). As the individual matures, certain features are played up and others, down. For example, being good at games was found to increase in importance for boys at the first, third, and fifth grades, while being quiet had almost dropped out as a desirable masculine attribute by the third grade (381). These shifting standards make it difficult for the growing child to conform. An individual with characteristics that carried status in the first grade may find his prestige lowered by the time he reaches the

fifth by merely maintaining the previously rewarded traits. Among sixth and seventh graders, a "Guess who?" technique showed that the boy whom his fellows idealized was good at games, able to lead, aggressive, fearless, and ready to take a chance. It was also important to be happy or jolly. Provided that he had his quota of masculine skills, friendliness and gentleness were permitted to make their appearance. The ideal girl at this period presented a very different picture in which aggressive and boisterous behavior had disappeared. She was friendly, pretty, tidy, docile, and quietly gracious. She was also permitted enthusiasm and quiet, good humor. During this stage, the tomboy was accepted but not emulated (623, 624, 625).

One phase of development that remains consistent throughout is the progressively better standing enjoyed by the male sex. This was brought out clearly in a study in which pupils in a coeducational school ranging in age from eight to fifteen were asked to vote whether boys or girls possess more of certain specified desired and undesired traits. At increasing age levels, the boys expressed a poorer relative opinion of the girls and the girls a better opinion of the boys. Although each sex was found to think better of itself than of the other sex, by age fourteen, the girls had reached a point where they thought almost as well of the boys as of the girls. It is significant that in no trait did the girls receive from the two sexes combined a progressively favorable vote proportion that was statistically reliable (567). This relative devaluation of girls by both sexes in our culture is carried over into adult life and becomes self-perpetuating. Traditional unfavorable attitudes in a variety of social areas have been found to be accepted by female as well as by male students (338). So stereotyped is our thinking that prejudice against women executives in government positions has been found not only in women in other fields and in men executives, but also in the women executives themselves, their personal experience to the contrary notwithstanding (479).

NORMS OF PSYCHOSEXUAL DEVELOPMENT IN CHILDHOOD

The Question of a Latency Period.—According to Freudian theory, which has greatly influenced thinking in the field of sexual development, the curiosity of early childhood gives way at four or five years of age to a dormant period which lasts until a little before puberty. This theory seems to be without biological basis, most of the available data pointing in the direction of uninterrupted sexual development. Recent colorimetric determinations of children's urine reveal a progressive increase of androgens and estrogens according to age and general physical development, reaching a peak at puberty (437). The only evidence of sexual indifference is more apparent than real and may be directly attributed to socially instituted sex segregation.

An early attempt to apply scientific method to the investigation of sexual development was published in 1902 (74). On the basis of a large number of reports, childhood was divided into two main stages. The first extended from the third to the eighth year during which there were many spontaneous demonstrations of affection between boys and girls. Hugging, kissing, the exchange of gifts, and instances of genuine self-sacrifice were common occurrences. The second phase, beginning at the eighth year and lasting until puberty, was characterized by shyness, modesty, and the absence of overt pairing. The tendency to pair off was present, however, but to avoid teasing it was expressed in secret. Gifts and notes were delivered by intermediaries. Such indifference is obviously the result of social conditioning rather than biological maturation.

In close agreement with these findings are those of a modern experiment designed to establish developmental norms for relationships between boys and girls (123). Controlled observations were made on over 100 "graduates" of the Merrill-Palmer nursery school, who were organized in recreational groups. From the original records, age scales were finally constructed.

The results revealed a similarity in social-sex patterning for the two sexes, with the girls from six months to a year in advance of the boys. Three main stages could be distinguished. The earliest one, from the fifth to the eighth years, was characterized by a rather undifferentiated and nonpersonalized heterosexuality. During this time no sex preferences were expressed in games; there was no modesty or sex consciousness; differential sex mores had not yet made their appearance so that boys did not show a protective attitude toward the girls and indeed would even fight with them physically. The middle period, which extended to puberty, was chiefly marked by a rising preference for children of the same sex. Both boys and girls became extremely modest about physical aspects of sex; girls were careful not to expose their bodies or underclothing before boys and would not admit feeling attracted to them. As found in the earlier study, social pressure in the form of teasing was exerted to establish and maintain a cleavage between the sexes. After puberty and continuing until the middle teens, heterosexual interest at long last came out into the open. Then both boys and girls began to take more care of their personal appearance and tried to attract the other sex. Cultural ideology made itself felt in the acceptance of sex differences in kinds of work and in the masculine prerogative to dominate women.

The agreement between these two studies more than a generation apart is striking. Apparently the mores of the economically well-to-do have not changed sufficiently within that time to affect the course of sexual development. Another recent investigation, however, shows signs of some trend away from the rigid sex segregation in middle childhood which upper-class Western culture has fostered (18). Over a period of 10 years, several thousand children covering the age range from four to fourteen were observed in an unusually free environment. The author found that the more closely the children were observed the less evidence appeared of a fixed latency period. Six-year-olds still

showed active and frank sexual curiosity which was farther reaching in scope than at the preschool level. After that, repression apparently drove the curiosity underground so that seven-year-olds seemed more quiescent sexually than six-year-olds. From the ages of eight to eleven the children displayed active, aggressive, even often sadistic sexual interest which took either a homo- or a heterosexual direction. The fact that this form of activity was so conspicuous in the prepubertal period is a direct reflection of the remarkably permissive nature of the environment in which the observations were made and indicates the extent to which such behavior is socially determined.

The same tendency appears under the more lenient mores of people at lower economic levels. Peasants reared close to nature show no break in the continuity of sexual development (391), nor do children of proletarian groups (606). Unfortunately most of the scientific data available in the field of sex behavior have been obtained from the middle class. We know relatively little about the social dynamics of lower-status groups or of other subcultures. Observation suggests that among the underprivileged, sexual expression, like the expression of aggression, is more direct and uninhibited (167). It is not regarded as inherently taboo and evil. Even though parents may taboo sexual behavior for their girls, the family example is often to the contrary. The child's play group discusses sexual relations frankly at the age of eleven or twelve, and status is acquired through sexual experience. The class difference is beautifully illustrated in a recent study of Negro children in the city of Cincinnati (138). The poorer Negroes showed a notable freedom from restraint both in indulging in sexual relations and in discussing their experiences. The relaxed inhibitions were correlated with decreased masturbation beyond preschool age, less brother-sister incest, and fewer parental fixations as compared with Whites. Among Negroes from a higher socioeconomic level, the standards of sexual conduct more closely approximated those of the Whites, and the

increased restrictions apparently increased personal maladjustments, often leading to psychoneurosis.

The importance of culture in sexual development is most strikingly brought out by a glimpse of other peoples. Among the Trobrianders of New Guinea, who do not taboo sex, there is a steady growth of sexual interest and experience (393). Children attain a large measure of independence at a very early age, and small boys and girls play together in a kind of juvenile republic. One of their favorite games is to play husband and wife, described in a previous chapter.

Viewed in cultural perspective the predominant role of social factors in sexual development is undeniable. Biology provides the raw materials; the particular form they take depends upon group sanctions and the kind of guidance received.

Social Implications.—It should be apparent from the evidence presented that psychosexual development in Western childhood is a slow, precarious process. Growth does not proceed smoothly from one stage to another. Not only is overlapping among phases a common occurrence, but arrest or reversal is threatened at all phases. We have already noted the importance of early home influences. Parental overprotection leading to prolonged dependence spells disaster for later life. Parental rejection, on the other hand, throws the individual upon his own inadequate resources and results in the various manifestations of insecurity, including masturbation, enuresis, homosexual trends, and other signs of maladjustment. Should the child escape unscathed from the emotional risks of the home, as soon as he enters the broader social world of school and playground, he encounters more threats to healthy sexual orientation. There is confusion on every hand. He is not given a clear conception of the sex role he is expected to play. What is acceptable girl behavior or boy behavior today may be frowned upon tomorrow. Moreover, the continuity of experience with members of the opposite sex which would help him empirically to discover the changing social

expectations concerning appropriate behavior toward them is rudely interrupted by a society which segregates him in school and camp with members of his own sex. This separation is not merely physical but it involves an even more serious psychological distance, maintained by a system of taboos administered by the children themselves. As a result of this perverted social pattern, we shall find as we turn to adolescence that there is unnecessary strain and self-consciousness in the relationship between boys and girls and that a long and painful process of relearning is required for the acceptance of the opposite sex. These unfavorable attitudes result from our failure to provide proper training for sex living. Progressive education in this field is imperative for healthy psychosexual growth.

CHAPTER XII

ADOLESCENT SEXUAL DEVELOPMENT

One of the most important phases of the adolescent's major problem of achieving independent status is his ability to work out satisfactory relationships with the opposite sex (120). The solution of this problem depends on the social direction given the powerful physiological drives welling up within him at this time.

HORMONAL REBALANCE

Puberty is the physiological milestone that marks the end of childhood. Measurable amounts of gonadotrophic hormone first appear in the urine at adolescence. It has been suggested that the probable mechanism for the initiation of puberty is a gradual increase in pituitary secretion coupled with an increasing sensitivity of the gonads to the hormone (552). Under heightened stimulation by the anterior pituitary the gonads accelerate their secretion of sex hormones. The resulting shift in endocrine balance involves thyroid, adrenals, and the rest, creating a radically new pattern. These physiological changes have the important behavioral effect of mobilizing into a powerful internal drive the sex interests and activities that previously had occurred chiefly as a result of external stimulation.

In the light of his bodily changes, the adolescent needs to reorganize his thoughts and feelings about himself. This accounts for the changes in interests which often emerge at puberty. In a study of adolescent boys, the increased output of male sex hormone was used as an index of maturity and was correlated with scores on paper-and-pencil interest tests as well

as with ratings of behavior. The results showed a very close relationship between hormonal activity and maturity of interests; the physiologically more mature boys placed greater emphasis on personal appearance and the opposite sex. They also expressed more interest in strenuous competitive sports than those who were less mature (569).

Adolescence has also been found to affect the interests of girls. A group of postpubertal girls made significantly more mature responses on a series of interest and attitude tests than pre-pubertal girls of the same age. One of the most interesting findings of this experiment was the intensification of home conflicts which the changed maturity status apparently precipitated. Like the boys in the study previously cited, the girls showed increased interest in personal appearance and in heterosexual activities. Far from seeking to indulge in strenuous sports, however, they accepted the "ladylike" tradition of abstaining from physical exertion (595).

In interpreting results of studies on puberty effects, we must recognize the possibility that they may not be direct effects of the physiological changes but rather, culturally determined personal reactions to the physiological events.

THE FEMALE SEX RHYTHM

In girls, hormone changes occur in cycles which usually make their appearance within the fourteenth year (103, 190, 358). The central event is the menstrual hemorrhage resulting in an average blood loss of 50.5 cc. (47). It has been found to recur somewhat irregularly at intervals of about 33 to 34 days for girls and 28 days for mature women (30, 190, 250, 256).

In spite of the superstitions and taboos with which this function has been surrounded (239), the onset of menstruation does not usually have a traumatic effect on the individual's later life. It is apparently accepted by the majority of girls with little in the way of conflict and often with genuine pride (111, 349).

There is always the risk, however, that it may be regarded as a restriction by emotionally immature girls who do not want to grow up and assume the responsibilities of adult women (404, 665). The importance of acquiring a constructive attitude toward the menstrual function at the outset cannot be overstressed. The first step in that direction is to examine the available scientific evidence and to substitute it for primitive superstition.

Physiological Processes.—As in females of lower species, a sequence of four hormonal phases has been traced in women (472) and the time of ovulation approximately located (51, 119, 221). Correlated with the endocrine phases are cyclic variations in such physiological processes as temperature, basal metabolic rate, and, less conclusively, blood pressure (50, 518, 519, 541, 636). There is also some evidence of a premenstrual rise followed by a menstrual fall in muscle strength and a preovulatory peak in motor activity (89, 539).

Psychomotor Performance.—As for psychological functions, a menstrual rhythm has been more difficult to demonstrate. The performance of short, relatively simple tasks (*e.g.*, tapping and color naming) fails to show fluctuations that can be attributed to the menstrual cycle. Even tasks on a higher level of complexity, as, for example, choice reaction time and learning, which call for a greater degree of concentration, show no evidence of cyclic impairment (297, 303, 370, 371). The question remains as to whether or not normal performance is maintained at greater cost to the individual in terms of extra effort. No attempt has been made to measure directly such an effect. In one study the subjects reported premenstrual and early menstrual increases in effort expended on intellectual work (383). Somewhat allied to this was the finding that women became fed-up with painstaking tasks more easily during menstruation than at other times (220).

Effects on performance assume special significance during

wartime when absenteeism of women employees in war industries may mean serious delay on the assembly line. A survey of industries that have dealt with this problem over a period of years revealed a striking decrease in menstrual disturbances after the introduction of check-up systems. Discontinuation of pay with consequent change in motivation, education aimed at improving attitudes, simple exercises, and other techniques indicating management's interest in the woman worker, all constituted effective psychotherapy. Consistent with the evidence from industry are the findings from the world of sports. Any activity, professional or amateur, whether it be swimming, dancing, or flying, *provided it is customarily engaged in without harm*, may be performed with equal impunity during the menstrual period (535). *Expectation* of injury as a result of some activity, however, may result in painful menstruation (234). The accumulated facts from laboratory, field, and shop which have consistently failed to indicate a menstrual handicap should go far toward removing one serious obstacle to woman's acceptance of her femaleness.

Emotional Reactivity.—It has been popularly assumed that the apparently greater emotional instability of women in comparison with men is associated with the menstrual cycle. Some support for this notion may be found in studies based on subjective mood ratings, personality inventories, diaries, and the like. According to these reports, the premenstrual phase is characterized by activity spurts coupled with high tension and irritability, while the menstrual period is accompanied by fatigue, depression, and introversive tendencies (19, 111, 143, 239, 383). Some investigators have reported confirmation of a mid-cycle activity peak characterized by feelings of elation (19). In subjective material of this sort, it is difficult to estimate the role played by suggestion. Social tradition has set such a negative value on the menstrual function that women are led to expect unpleasant effects on mood and behavior. These attitudes

are often transmitted from older to younger women and result in a variety of menstrual disabilities (514).

Related to emotional stability is stability of organic response to disturbing stimuli. To determine possible menstrual cycle effects, the writer confronted a group of normal women with intense electric shocks and measured a variety of reactions, representing different levels of voluntary control. These included galvanic skin response, breathing, muscular tension, and gross bodily movement. Analysis of the women's scores were not significantly different from analogous data obtained on male controls (547). This is further confirmation of the finding that objective measure fails to validate subjective impression. It does not mean that feelings of distress resulting from physiological upheaval may not augment the psychological stress experienced by adolescents in our culture.

Another way of getting at the relation between feelings and the menstrual cycle was Benedek and Rubenstein's correlation of vaginal smear analyses with psychoanalyses (77, 78, 79). According to the authors, smears indicating low hormone level are associated with eliminative and destructive tendencies. Those representing high estrogen function are normally related to active interest in the opposite sex, accompanied by a feeling of well-being and leading to sexual indulgence. In neurotics, however, the increased estrogen seems to stir up emotional conflicts, especially those concerning homosexuality. In the premenstrual phase, when progesterone dominates the smear picture, the heterosexual tendencies are present but express a passive and receptive attitude and are often accompanied by impregnation phantasies. These three cycle phases suggested to the authors a recapitulation of individual sexual development according to Freudian theory: a pregenital anal stage, an active stage often associated with homosexual conflict (in neurotics), and a passive heterosexual stage. Results based on the analysis of 152 cycles of 15 women appear in Table 7 (79, p. 30).

In view of the predominantly negative findings of objective measurement, these surprisingly clear psychosomatic correlations seem too good to be true. Their perfect symmetry would indeed arouse suspicion of methodological flaw were it not for the saving fact that the two series of analyses were made by different investigators in different institutions. Even so, overlapping was not entirely ruled out because the smear-taking experience sometimes had repercussions in the psychoanalytic sessions and may have given inadvertent clues to cycle phase. Such clues might unin-

TABLE 7.—DISTRIBUTION OF THE PSYCHODYNAMIC TENDENCIES AND THE CORRECT PREDICTIONS OF HORMONES

Hormone	Active tendencies	Passive, receptive, and retentive tendencies	Eliminative, pregenital, destructive tendencies
Estrogen	1904	11	5
Progesterone	6	1721	14
Low hormone level.....	23	33	1188

tentionally have served as a basis for predicting hormonal changes in correlation with changes in dream or fantasy trend. The variability of the smear picture from phase to phase might well have taken up some of the slack in agreement and account largely for the unusual consistency of the predictions reported.

Of course, the selection of patients whose symptoms and psychoanalytic revelations indicated a relationship between neurotic disturbances and ovarian functions was aimed to silhouette whatever correlations there might be. As the authors are frank to admit, one would not expect the behavior of normal women to be so directly influenced by slight shifts in endocrine balance. We should look to social forces as the more potent determiners of normal adult behavior.

In Daniels's more recent intensive study of a single case, dream contents revealed in psychiatric interviews were correlated with urine assays of sex hormones (163). There was a tendency for dreams with erotic implications to be concentrated around the time of expected ovulation although they were distributed throughout the cycle. Similarly, although nurture dreams and those dealing with pregnancy and children reached a peak in the middle and latter portions of the cycle, there were many exceptions. The pregnancy theme manifested toward the end of the cycle may have reflected the subject's frustrated maternity longings. The nutritive dreams were conceivably related to the weight cycle (622). In general, Daniels failed to establish a definite correlation between the psychological picture and sex hormones. He emphasized the importance of the dreamer's personality and the role of external events.

Sex Desire.—Erotic feeling seems to be intensified though not initiated by the onset of menstruation (659). On the basis of our knowledge of subhuman forms, we should expect the intensification to recur rhythmically. We have already noted the correlation between increased sexual activity and oestrus in the lower mammals. Even among primates where mating is not restricted to a particular phase of the cycle, a preovulatory period of heightened sexual behavior appears although, as we have seen, the correlation of behavior and menstrual phase is often masked by the operation of social factors. At the human level there is also evidence of cyclic variation in sex desire which is very much obscured by cultural demands (552). Questionnaire returns have indicated postmenstrual peaks which are presumably homologous with oestrus in lower mammals (168, 259, 383, 620). The occurrence of premenstrual increases reported by some investigators probably represents a heightening of general emotional tension which finds an outlet in sexual behavior (168, 259). On the basis of records kept by husbands and wives through several cycles, Tinklepaugh suggests that the

premenstrual peak in sex desire is, in reality, diffusely affectional rather than erotic, which, however, may assume a sexual expression and lead to nonfruitful coitus (620).

The results we have surveyed reveal the menstrual function as a psychosomatic process which is readily affected by psychological influences. Through a supersending center in the brain stem, autonomic impulses may either be transmitted to the anterior pituitary, which in turn regulates the gonads, or they may directly affect the uterus (226). This mechanism accounts for the various effects of social suggestion we have already noted in the experimental data. It also accounts for certain anomalous irregularities of menstruation, as in the case of the traveling salesman's wife whose menses invariably appeared whenever he returned (234). In the same category is the frequent onset of menstruation on the wedding night. Release from fear of pregnancy or fears connected with other aspects of the female role have also been found to induce the flow (493).

Conclusions based on both clinical and experimental data reveal a variety of menstrual cycle effects. These effects, however, are attitudinal, resulting from the subject's social expectations. They are not the invariable and inevitable effects of the physiological changes per se. In the light of the evidence, we may point out once more the importance for adolescent girls of acquiring a positive attitude toward this function.

With these points in mind, we may turn to a consideration of the development of psychosexual behavior patterns where we shall again find social context taking precedence over biology. Adult sexual orientation must be viewed as an emergent from a rich and varied socializing experience. Sexual interest and behavior appear in the child as important aspects of social development. The physiological puberty changes energize the reproductive mechanisms, intensifying and making more specific the sexual needs. Of the various possible directions sexual behavior may take, nature and nurture conspire to focus it on the

opposite sex. But canalization is slow, and as in the lower primates, there is much trial and error before the acceptable mode of sexual expression is attained.

AUTOEROTISM

Incidence.—Carried over from childhood, autoeroticism becomes the typical sexual behavior pattern of early and middle adolescence (659). Masturbation, the most common form, is widely practiced. Table 8 (adapted from Harvey) summarizes the results of various studies up to 1932 and shows the percentage of subjects who clearly admitted having practiced the habit at some time (277, p. 98):

TABLE 8.—SUMMARY OF EARLY INVESTIGATIONS OF AUTOEROTISM

Author	Date	Method	Subjects	Sex	Age	Number Answering	Per Cent Auto-erotic
Exner	1915	Questionnaire	College	M	19	531	60
Peck and Wells	1923	Questionnaire	College	M	23	188	74
Peck and Wells	1925	Questionnaire	College	M	23	238	82
Achilles	1923	Questionnaire	College	M	22	42	64
Achilles	1923	Questionnaire	High School	M	16	406	47
Hamilton	1929	Interview	College	M _m	42	100	88
Achilles	1923	Questionnaire	College	F	21	47	28
Hamilton	1929	Interview	College	F _m	42	100	40
Davis	1929	Questionnaire	College	F _m	38	1000	38
Davis	1929	Questionnaire	College	F _s	37	1000	60

m: married; *s:* single.

According to these results, the approximate median percentage of indulgence in masturbation for men is 70; for women, 40. More recent data, covering the past decade for both men (330, 608) and women (349, 397, 602), are in essential agreement with the earlier findings. In view of the reticence surrounding this

practice, the figures reported are undoubtedly underestimations. Indeed the latest material, based on personal interviews, indicates practically universal occurrence in males in our society (490). The situation for girls is in all probability not far removed from that of boys.

As we have already suggested, genital manipulation in childhood is a more diffuse and less specifically erotic experience than in adolescence. Increased hormonal action may in part account for the increased incidence of masturbation at puberty (251, 659). The frequency depends on the balance between erotic capacity of the individual and the cultural restraints to which he is subjected. For the adolescent male in our society, masturbation is the major sexual outlet, and it usually decreases as other sources of gratification are discovered (490).

Cultural Determinants.—Autoeroticism is to a large extent a social phenomenon, occurring almost universally under conditions that prevent normal sexual intercourse. Our society makes heterosexual relationships difficult in a number of ways. For one thing, the overprotection that the family circle exerts on its members delays their attaining emotional and social maturity. For another, the prolonged education which a large proportion of our population enjoys postpones economic independence and the possibility of marriage. Thus the individual reaches reproductive maturity before he is prepared or permitted to undertake adult sexual relationships. Lack of opportunity for relations with the opposite sex is reflected in masturbation. At all ages there is a higher incidence for the unmarried (659) and, among bachelors, for the older as compared with the younger men (608). Since marriage is neither denied to all nor available to all, personal selective factors are bound to enter. Some, owing to their own inferior social adjustment, will avoid marriage and depend exclusively upon autoerotic practices, while others whose heterosexual orientation is well developed may be prevented from marriage because of circumstances and depend on

masturbation only as a temporary expedient to reduce their mounting sexual tensions.

Personality Correlates.—We find that masturbation, like other forms of sexual behavior, is not a constant but varies according to the personality context in which it occurs. There is apparently no particular type that is especially prone to acquire the habit. Withdrawn persons, who are unable to form normal attachments with the other sex as adults, have been found to include a relatively high proportion of those who masturbated as children (659). Moreover, groups of women so badly adjusted socially as to require hospitalization indulged more frequently than normal groups in excessive masturbation and continued the practice over longer periods of time (349, 602). There is also a close tie-up between masturbation and personalities high in dominance feeling, as suggested by the data in Table 9 from Maslow (397, p. 270).

TABLE 9.—PERCENTAGE OF WOMEN SUBJECTS MASTURBATING, GROUPED ACCORDING TO SCORES ON MASLOW'S TEST OF DOMINANCE FEELING

Dominance scores in deciles	N	Per cent
61 to 182	44	70
32 to 60	13	54
16 to 31	7	71
1 to -15	8	50
-12 to 0	7	57
-28 to -13	8	62
-40 to -29	5	20
-58 to -41	5	20
-81 to -59	7	29
-145 to -82	10	30

Thus we find masturbation in dominant as well as in reclusive personalities. Furthermore, it occurs as frequently in men especially selected for their intellectual superiority and moral

integrity as in others (330, 608). Generalization is impossible, and the only conclusion we can draw is that masturbation is differently motivated in different personalities. For the introvert or psychopath who has failed to free himself from family ties it may represent an escape from the more exacting demands of heterosexual relations; for the high-dominant individual, it may represent one of the many forms of sex play which he enjoys, while the low-dominant person is too repressed to indulge at all; for the upstanding youth it is merely a means of eliminating distracting tensions and increasing efficiency.

Consequences.—Just as the meaning of autoeroticism differs for each individual, so does its desirability or undesirability. Whether the practice is good or bad for him depends upon its significance. No absolutely good or bad effects have been scientifically established. It is often a symptom of underlying maladjustment and represents a failure to grow up sufficiently to undertake adult sex relationships. In such cases the treatment should be aimed at the underlying difficulties rather than at the symptom. Removing the symptom may drive the trouble still further underground and cause more serious involvement of the personality.

In cases where masturbation is a function of external circumstances, it normally declines when conditions become favorable for relations with the opposite sex and may be reduced in the meantime if satisfying emotional and physical outlets are provided. The only danger in such cases lies in the guilt feelings the individual may experience because of faulty sex education. Persons who are socially well adjusted and whose indulgence in masturbation represents an ebullience of animal spirits are capable of handling the situation for themselves.

BISEXUALITY

The adolescent's first attachments outside the home are apt to be rather undifferentiated, ambierotic affairs involving either

sex, popularly known as "crushes." In the transition from family ties to the larger society, he is likely to transfer his affections to older individuals who thus serve as parent substitutes. At this stage there is usually little coordination between the physical and the psychological aspects of love, so that the adolescent may be unaware of the sexual components and view his affection as pure and idyllic. In fact the relationship is an extremely one-sided affair, in which the love object appears unrealistically as the embodiment of the adolescent's ideals. He is not seen objectively as an equal with whom there can be mutual sharing of interests and experiences. It is enough to worship from afar.

A closer approximation to a mature, equalitarian relationship is the crush between people of the same age. According to the results of an extensive canvass of camps, schools, and colleges, most adolescents experience one or more crushes of this sort. They may be variously motivated by a desire for companionship, sympathy, and understanding, or by a recognition of physical beauty. Moreover, they may involve members of the same or of opposite sex. The boy-girl crush differs from a full-fledged love affair only in degree of stability and of psychosexual integration. Crushes in general seem to be more prevalent among girls, and the homoerotic forms are almost exclusively confined to them (307). Before heterosexual orientation has become fully established, such relationships are easily produced especially in sex-segregated institutions or under any other conditions that block normal heterosexual development (142, 211). Fortunately these fixations are unstable and quickly yield to interest in the opposite sex when the opportunity presents itself (307, 349).

HOMOSEXUALITY

Incidence.—Even deeper degrees of homoerotic involvement occurring among young people are often easily reversible. They occur much more widely than is popularly realized, as indicated

by the figures in Table 10 from Davis's study of normal women (168).

TABLE 10.—INCIDENCE OF DIFFERENT FORMS OF HOMOEROTICISM AMONG NORMAL WOMEN

Form of homoeroticism	Married, N = 966		Single, N = 1181	
	N	Per cent	N	Per cent
Nonsexual.....	149	15.4	293	24.9
Sexual, nonovert.....	17	1.8	78	6.6
Sexual, overt.....	140	14.5	234	19.8
Total.....	...	31.7	...	51.3

As in the case of autosexuality, we must allow for underestimation since the strict cultural taboo makes it difficult to admit homosexual practices. In spite of their surprising prevalence, they seldom interfere with the attainment of normal marriage (168, 611).

Confirmatory results have recently been reported for men and boys. In a heterogeneous group of nearly 300 boys, 38 per cent were found to have indulged in preadolescent homosexual play, and in 46 per cent homosexual experience occurred during adolescence. The frequency varied widely, reaching a maximum of 400 contacts. The range of partners also varied but, among adolescents, was usually under five (490). Among men, a study of 1600 case histories covering a wide variety of subjects, revealed that 36 per cent had had one or more overt homosexual experiences. For the college-trained group alone the figure was 30 per cent. These episodes apparently had little carry-over and often coincided or alternated with heterosexual activity (329).

The Role of Biology.—In cases where the permanent orientation is homosexual, the question arises as to the relative influence of biological as contrasted with social factors. Certain male

homosexuals have been regarded as feminized genetic males (53, 350). In the majority of cases, significant shifts in androgen-estrogen balance in favor of estrogen have been reported (237, 238, 434, 656, 672, 673). Moreover, some investigators have noted a proneness on the part of homosexuals to physical deviations (44, 285, 288) which are usually not sufficiently extreme to classify them as intersexuals (177, 669). Association between homosexual tendencies and physical anomalies need not, however, imply a causal relationship. It may not be the structural defects *as such* that cause the sexual deviation but rather the psychological reaction to them. The presence of physical characteristics of the opposite sex may create conflict in the individual and lead to a redirection of the libido (44). The inconsistencies in "corrective" hormone effects lend further support to a psychological interpretation. Efficacy of treatment seems to depend on frame of mind and general outlook (44, 45, 515, 520).

In the rare cases where physical deviations reach so high a degree of intersexuality as to warrant the diagnosis of hermaphroditism, the variability in sex orientation is an index of the importance of social attitudes. Several cases of males mistaken for females and reared as such have been reported. The case of James is of special interest because of a follow-up after 14 years (179, 180).

James spent his first fourteen years as "Margaret." He was never comfortable as a girl. He suspected that he was not a girl at five years of age when he noticed that his genitals were like his brother's rather than his sister's. At eleven his voice changed and at twelve he rejected the feminine role. Although he had been accepted by girls it was as a tomboy. On his fourteenth birthday he was officially transformed into a boy by a change of clothing and residence. Although at first he had the reputation of being a sissy among the boys, he overcompensated and became a tough boy. Later his adjustment seemed more normal.

Even after 14 years in the masculine role, however, James's masculinity structure was still weak and his heterosexual adjustment uncertain.

"Martin Murgy," also reared as a girl, showed more independence of structure and attitude (420).

A testis was found to coexist with female genital organs. Although he had been rather a tomboy, while still in skirts, he said he would be content to belong to either sex. The appearance of a beard and the deepening of the voice, however, proved so embarrassing that he welcomed the suggestion of his essential maleness. Psychological study following surgical readjustment revealed a trend of interest toward certain typically masculine occupations, a taste for outdoor activities for social-athletic pursuits. His M-F scores averaged more masculine than those of unselected male groups of his age and education. The test also revealed the effects of social conditioning; on those parts which depend on habit and experience, his ratings were more feminine than the male norms while on those in which the wish to be masculine determined the score, he made a more masculine showing on the test. In the light of such evidence it is more than probable that the "intersexual" M-F scores reported for various groups of invert reflect psychological attitude rather than biological anomaly.

An even more striking example of psychosomatic incoordination appears in the case of an anatomical male who insisted on playing the feminine role (207).

S. M., Unit 35209, Massachusetts General Hospital. A seventeen-year-old individual who had always regarded herself as a girl complained of failure to menstruate. Examination revealed a large clitoris, but an absence of uterus, tubes, ovaries, vagina, or mammary tissue. There was neither prostate nor seminal vesicles, but the patient did have undescended testes and predominantly male secondary sex characters including a deep voice which is an important diagnostic sign of masculinity (233).

From early childhood, S. M. had assumed the feminine role. "Her" earliest memory concerned an episode representing herself in this role at the age of four in doll play. During adolescence, like normal girls "she" became interested in boys and dances, and later, in sewing, cooking, and housework. Moreover, she experienced typical feminine phantasies of being married and having a family. This obviously female orientation apparently began with an early identification with her mother and fear of her father whom she felt to be cruel.

There are other similar cases (664) showing marked discrepancies between biology and behavior which are further evidence of the predominant importance of social factors in psychosexual growth.

Social Factors.—Henry, who has done extensive work in this field, recognizes the greater risk of homosexuality arising from social factors than from structural deviation (287). We have observed how the lack of opportunity for heterosexual contacts, whether through segregation or through moral taboos, may focus an individual's interest on members of his own sex. Such an orientation is usually temporary, however, and easily yields to normalizing influences. We have also suggested that more deeply seated patterns of homoeroticism have their origin in the early family situation. A pervading atmosphere of happiness in the home leads to a ready acceptance of life in general and sex role in particular (204). Homosexual trends are but one part of a general disturbance in emotional development which may result from parental rejection, overdependence on parents, cross-sex identifications, or traumatic sexual experiences (76, 286).

Motivation.—Homosexuality, like autosexuality, is variously motivated and consequently may appear in any personality pattern. The withdrawn individual may find in a love relationship with someone of his own sex a comfortable haven from the more formidable adjustments with the other sex (659). The dominant woman, on the other hand, finding that the feminine role in our society fails to give her energies sufficient outlet, may express her "masculine protest" in the active pursuit of more feminine women as well as in business and professional life (397, 638). The relationship between social dominance and homosexual behavior is brought out strikingly in a recent study of Negro and White girls institutionalized together. In this setting the Negresses enjoyed superior social prestige on the basis of which they behaved aggressively toward Whites of equivalent mental levels. Their aggressiveness was interpreted as "maleness" by

the white girls, who gave much evidence of being sexually attracted by them. The Negresses assumed the masculine role insofar as it involves making sexual advances, accepting admiration, exhibiting jealously, showing off, and giving commands. The white girls responded to this social maleness by vying with one another for a Negress' favors, even to the point of stealing food from the staff kitchen. The social origin of the homosexual dominance behavior on the part of the Negro girls came out clearly when they dropped the masculine role they had assumed toward white girls in order to play the feminine role toward another Negress (1, 2).

In concluding our discussion of adolescent homoeroticism we should emphasize the fact that people whose adjustment remains at this level are the exceptions and that for the vast majority in our society it represents merely a temporary phase in the process of attaining psychosexual maturity. In some societies a homosexual stage is considered essential to the attainment of psychosexual maturity. For example, the "making of man" cult among the Keraki Indians of southern New Guinea requires the assumption of different roles from boyhood to old age. The first is a passive homosexuality, followed by active homosexuality, which finally gives way to the adult heterosexual stage. It was thought by these people that no boy could grow to full stature without playing the homosexual role for some years (81).

HETEROSEXUALITY

Psychosexual Growth.—When at last the individual is definitely oriented toward the opposite sex, he still has a learning process ahead of him before he will be fully prepared for an adult equalitarian relationship and the responsibilities of parenthood. Although there is no sexual I Q, some normative data are available for limited segments of male and female American society. Among boys from middle and upper class homes in the Middle West, preadolescent sex play was reported in two-thirds of the

cases. It was expressed in a variety of forms, the most common of which was manual exploration associated with direct observation of the genitals. Exhibitionism, attempts at intercourse, and oral contacts were also reported. During the adolescent period heterosexual activity was most likely to occur as petting which included kissing and manipulation of the breasts and genitals. The petting became more frequent and elaborate with age. By the age of eighteen, 80 per cent of the boys had indulged in kissing while 44 per cent admitted the complete sex act. Their female partners included companions, pick-ups, prostitutes, fiancées, house servants, and older women (490). The variety is symptomatic of the passing of the double sex standard of the 1900's.

For women from approximately the same socioeconomic level, we have Landis and Bolles's scale of psychosexual maturity. In a study of 295 women they found that certain experiences, attitudes, and practices were common and usual at certain ages and could be regarded as approximate age norms. Three levels of development are represented in the following excerpts from their scale (348, p. 449-450).

Maturity, fifteen to seventeen years

The average girl of fifteen to seventeen years has gone out with boys fairly frequently but has not had complete sex experience. Her relationship with boys has been carried to the extent of mild petting. She is still somewhat tied to her family emotionally, and economically has not reached an independent adult status. Her sex information is fairly complete, but she feels quite constrained in discussing such matters with her family. She still takes a good deal of pleasure in associating with girls of her own age but is definitely interested in boys, more as dates than in any more serious fashion. She has fairly strong emotional attachments to members of her family and to her friends of either sex but is not exclusively attached to any one of them as an individual.

Maturity, eighteen to twenty-one years

The average girl between these ages may be expected to show the following characteristics. She has many friends and activities outside the family

circle which keep her away from home a large part of the time. She is not wholly independent of her family financially, however. She has had a fairly complete knowledge of sex since she was sixteen years old. She has gone out with six or more boys on different occasions, and feels that she is attracted to one of them, but has not been thinking specifically in terms of marriage. Her attitude toward sex is one of healthy interest. She is not preoccupied with boys, although more and more of her time is spent in planning or daydreaming about particular individuals.

Maturity, twenty-two to twenty-five years

The mature woman has completely resolved her family ties and is free from any pronounced signs of narcissism. Her heterosexual intimacies have included some sex play or petting. She is free from any unfavorable sex attitudes.

With further quantification this scale could become a valuable diagnostic instrument. It is an important step forward in the analysis of human sex behavior. It shows a gradual progression in heterosexual growth from minor intimacies to the point of complete intercourse, and it shows this progress as a phase of general social development.

Personality Correlates.—Qualitative variations from one individual to another resulting from personality overtones cannot be handled on a quantitative scale. Bromley and Britten (106) however, have made a start in this direction in their classification of over 1000 adolescent boys and girls according to sexual behavior types. These include the serious-minded "virginal" girl who is socially timid and lacking in the self-confidence to compete for dates. In contrast, the "experimenter" values her own personality development very highly and shows an inquiring mind and venturesome spirit with no fear of sexual experience. Among the boys, the "uninitiated" corresponds to the virginal and is prevented from sexual experimentation by a mixture of fears and ideals, while the "hot-blood" represents the uninhibited, self-indulgent young man with few fears.

Supporting evidence concerning the female types may be

adduced from Maslow's finding that the virgins and the promiscuous occupy respectively the lower and upper extremes in dominance-feeling scores (397).

Cultural Norms.—The application of psychosexual standards is necessarily limited to the conditions of standardization because of the very large part cultural factors play in psychosexual development. In those primitive societies that do not interpose barriers to heterosexual relations, coitus itself may be practically universal by the teens (659). Obviously a scale designed to fit our present standards would be invalid as a measure of theirs. Even subcultural groups may vary widely in mores, as indicated by differences between Negroes and Whites in our society in evaluating sex delinquencies (138). Among lower-class Negro girls, the accepted standard of morality corresponds more closely to the conduct expected of middle-class adolescent boys than to that of corresponding groups of girls. On the basis of field work on this problem, Brenman points out that a girl who had remained a virgin until the age of seventeen was the source of much amusement to her schoolmates. A common pattern of sex behavior for these girls is to consort with married men. As one subject put it, "I know it's wrong for me to accept a married man's company but knowing that they know how to entertain a woman, I do. If you don't have sexual relations, you'll be either sick or insane, so I decided that a girl should give vent to her feelings" (104, p. 317).

A very different sex code prevails in the Italian slums of Eastern City where a premium is placed upon virginity at marriage. This ideal is upheld by strong legal and institutional sanctions and is supported by equally strong sentiments. For a "corner boy" to have "laid" a virgin is to incur the severe censure of his group (654). If there were need to prove the relativity of cultural norms of sex behavior, we could cite examples indefinitely, but perhaps those chosen will suffice to indicate the risk of generalizing from one group to another.

THE ASSUMPTION OF SOCIAL SEX ROLES

The success of the adolescent's adjustment to the opposite sex is not merely a matter of appropriate sex behavior. It is essentially dependent on his acceptance of the social role his sex membership enjoins upon him. In our society this is no simple matter. We have found that the actual roles of males and females at different periods are quite different from the fixed dichotomy we popularly assume. The ever-changing definitions of masculinity and femininity create confusion in the social expectancies of maturing boys and girls concerning one another (696).

Feminine Roles.—The earlier physical maturation of the girls is partly responsible for this situation. For a time they enjoy having the upper hand, and sex roles may run in reverse. New patterns of behavior begin to emerge so that the "little lady" design which we noted earlier gives way to the more dominating "goodsport (623)." Another acceptable junior-high-school motif is the glamour girl with accent on sophistication and appearance (625). This pattern often proves a safeguard against the lowering of status the girl inevitably experiences when the boy catches up with her. It is at this time that girls want to be boys because boys do all the wonderful things and get all the admiration (550). Unless these social losses are counterbalanced by placing a high value on her newly acquired form and function, there is grave risk that she will reject not only her unsatisfactory social role but, along with it, her supremely satisfying biological functions. The risk is all the greater in cases of noticeable deviation from the developmental norms. Large hands and feet, unusual tallness or squattiness, bring into question the girl's essential femininity (584). Fortunately the misfit is the exception, not the rule. An extensive survey of adolescents indicates that the modern girl is looking forward to expressing her femininity in marriage

and maternity even more than her mother did, but that she hopes to combine these functions with holding a job (697).

Masculine Roles.—In the case of the boy, skill at sports is highly valued all through high school, but boisterousness gradually ceases to carry prestige. Moreover, the base of achievement broadens to include success in other areas, such as journalism, dramatics, or student government. Social standing and popularity with girls also contribute to the older adolescent's status (413).

Although girls in our culture suffer more from discontinuities in sex role than do boys, it is not all smooth sailing for the boys. Those who have the hardest time are the physically handicapped. So much stress is still placed on a strong physique, athletic skills, and leadership in games that a boy who cannot measure up to the standard feels that he cannot be an adequate male. A sensitive, studious, or artistic boy is in the background and may feel driven to do almost anything to gain status in his friends' eyes (550). The greatest sufferers of all are the unfortunate cases in which puberty ushers in a feminine distribution of fat accompanied by small genital organs. This sex-inappropriate development following normal childhood is apt to be traumatic in its emotional consequences and lead to bitterness. If it fails to straighten out spontaneously, treatment with male hormones may be effective not only in relieving the physical condition but also in increasing feelings of security (320).

These shifting standards in sex roles in adolescence as in childhood make it difficult for the growing individual to conform. Unless he adapts his personality to the changing demands, his status is bound to fluctuate in a disturbing way. For example, Meek cites the case of an animated and active girl who did not enjoy the prestige of the group at 12 years when the quiet little lady was the ideal. By 15, however, she was judged by her classmates as one of the most emulated because the active,

gay, outgoing personality which she continued to manifest, had become the new model (413). Just as often the change in status is in the other direction. To prevent such sudden jolts in development, a fundamental revision of prevailing concepts of sex roles is indicated. Meanwhile guidance through the school could do a great deal to ameliorate the situation.

SEX EDUCATION

Looking back over our survey of sexual development in childhood and adolescence, we may trace a parallel between learning the heterosexual pattern and learning any other complex performance. In our society, because of the social barriers interposed between the individual and the goal, there is much trial and error. He often goes down the blind alleys of auto- and homosexuality, but as insight develops and the correct pattern becomes clearer, these aberrant forms of behavior normally drop out. The adjustive process is complicated by the sex differentiation in social role. The learning would be more insightful were the young people given as careful preparation in sex living as in reading, writing, and arithmetic. For a proudly literate society consciously to evade the responsibility of education in this important area is difficult to understand and impossible to excuse. In this respect we are behind socially progressive Sweden where sex study was included in the high-school curriculum in 1935 and plans for expanding the requirements were under way a few years later. The greatest obstacle to carrying out the program there was the inadequacy of available textbooks (267). Fortunately there are pioneers in this country who are busy blazing a trail and there is hope that our biology books of the future will not be written as though there were nothing but a "smooth surface below the waist," as H. L. Mencken once put it.

Education for Social Sex Role.—Education for living with the opposite sex is much broader in scope than imparting the

facts of life. It includes the whole range of social-sex relationships between men and women. In planning a comprehensive program of sex education, the first and foremost consideration should be given to a revision and clarification of sex roles. The conflict and confusion that mark the present transition from patriarchal to democratic forms of relationship between the sexes must be resolved so that the growing boy and girl may work toward certain personality ideals and social goals and be able to count on their continuity. New norms will have to be established to fit the new patterns and used to guide this phase of development.

Casual Sex Impressions.—As far as details of reproductive biology are concerned, it should be recognized at the outset that the question is not whether or not to give the child sex instruction. As Conn forcibly points out, there is no such thing as *not* giving sex education (147). Nearly all children at an early age receive sex impressions which may permanently color their attitudes toward this phase of life. They may pick up negative attitudes from parents' unverbalized evasion of the issue. Or, they may pick up negative attitudes from oversevere toilet training which easily irradiates to the functions of the closely associated genitals. Again, punishment directed at the child's natural curiosity and exploration of his sex organs may induce guilt and fear concerning their function (229). To help parents attain the necessary objectivity to handle the early problems of sex training, visits by parent advisers and group consultation services provided by the school have been successfully used (467). Probably there is no better mother's helper than the family cat, dog, or white rat. These pets can be counted on to demonstrate without embarrassment or obscenity the natural reproductive processes as Figure 22 suggests. The growing child's earliest impressions concerning sex are formed not only in the home but on the street (198, 304, 491). While the interchange of sex information and experience is a necessary

part of group life, the inadequacies and inaccuracies need to be counteracted by systematic instruction.

Systematic Sex Instruction.—Formal sex education should utilize all the regular available channels rather than introduce



FIG. 22.—*Pets are good teachers.* (*Courtesy of Elizabeth R. Hibbs.*)

new and special mediums which might do more harm than good by overemphasizing sex. From nursery school to college the facts of life could be disseminated as an integral part of nature study, and later, of biology, hygiene, social sciences, home

economics, and other standard courses (199, 228, 247 530). Throughout, it should be progressive in the sense of following the individual's needs as they arise rather than to set up an arbitrary curriculum of what should be taught (73). At the outset, an inventory should be taken of the child's stock in trade of sexual knowledge and attitudes. Emotional resistances resulting from faulty preparation must be resolved before new material can be assimilated (229). Moreover, he should be supplied with an adequate vocabulary of sexual terms. We have noted the self-consciousness surrounding the special words coined to describe reproductive processes. The substitution of objective biological terms would not only avoid a *verboten* atmosphere, but would provide a working basis on which could be built an effective sex education (145). The verbal handicap arising from early mistraining results in an illiteracy in later childhood and adolescence which makes it impossible for the individual to read the simplest literature on the subject (491).

As for the subject matter, the progressive approach would demand that it too be adapted to the individual's changing interests and capacities (99). Precocious education in this field as in any other is ineffectual if not harmful. During early childhood curiosity centers around the origin of babies and genital sex differences. A little later the child's interest becomes directed toward his mother's body and the process of pregnancy. It is not until he is nine or ten years old that he becomes concerned with the less obvious role of the father in reproduction (147, 279). In adolescence, the main questions concern problems of marriage and family life, techniques of intercourse, birth control, and ways of handling the sex drive (73, 165, 185).

If sex education could thus meet the individual at each stage of development, it would be able not only to correct the many fallacies prevalent even among the educated today but to develop wholesome attitudes that would contribute importantly to later adjustment (488, 644).

CHAPTER XIII

ADULT RELATIONSHIPS BETWEEN THE SEXES

PREMARITAL PREPARATION

In all societies adult sexual relations are regulated by some form of marriage. That culture rather than biology determines the nature of the institution is indicated by the wide variety of forms represented (113). Polyandry, polygyny, and group marriages are found as well as the various monogamies. Even Western culture does not present a uniform type. Differences in accent and overtone characterize marriage in Europe in contrast to marriage in America, marriage in the lower class in contrast with marriage in the middle class, and so on throughout the culture. It is middle-class American monogamy around which our discussion will center. Contrary to the glamour literature from fairyland to Hollywood, marriage is not a mysterious elixir which overnight creates new personalities from old. We have followed the long course of psychosexual development leading to permanent heterosexual mating. As the culmination of a continuous growth process, the quality of the marriage reflects the adequacy of the premarital preparation. From the moment of birth the individual in our society is being prepared, well or badly, for marriage. To grasp the import of this, we must conceive of marriage in a broad sense. Too often marital adjustment has been narrowly identified with the physical sexual relationship. No one can deny the dynamic part that this plays in marriage, but it must be seen in its proper setting. That setting involves the whole of both personalities in the partnership and the role they are trained to play and to expect from their partners. For

this reason we should consider the total life history as preparation for the most mature and rewarding relationship that our society offers.

Family Factors.—For patterns of response that are to play a decisive role in marriage we must go back to early family relationships. Childhood happiness depends upon mutual confidence between child and parent. In an atmosphere of trust and security, positive attitudes toward all aspects of life, including the sexual, are likely to flourish. The emotional climate of the home is of much greater significance for later marital adjustment than such exterior considerations as income, occupation, number of brothers and sisters, or religious training (349, 485, 609).

By the time the child reaches adolescence, he should be sufficiently secure to stand on his own feet. His childish affections give way naturally to the more independent relationships of maturity. Where the early attachments are of a tense, clutching character, they indicate insecurity and are not easily dissolved in adolescence. Under such circumstances the individual is apt to carry his emotional dependencies over into marriage, with unhappy consequences. This often occurs in people who have experienced excessive childhood illness and in those suffering either parental rejection or overprotection. Such faulty attitudes indicate in themselves a neurotic clinging to the child and often reflect the parents' marital unhappiness. They in turn result in the marital unhappiness of the next generation and in this way the vicious circle is perpetuated. Psychological weaning must work in both directions—the parent must be weaned from the child as much as the child from the parent. Healthy relationships with contemporaries are seriously impeded by fixations on parents or parent substitutes. As evidence we may cite a recent study of attitudes toward parents and courtship behavior among college men. It was found that those who reported the lesser degrees of love for their mothers

indulged in more courting than the men whose filial love was very marked (662). To meet the increasingly equalitarian demands of modern marriage, emotional flexibility is essential (115). The dynamic influence of early social role on marital compatibility is nicely illustrated in Burgess and Cottrell's series of case histories. The following excerpts from the case of Mr. and Mrs. G. provide an excellent example (115, p. 202ff).

Mrs. G. (age twenty-six) appealed to her physician for help in meeting what she regarded as a crisis in her marriage. She stated that Mr. G. was drinking heavily and with increasing frequency. His gambling was becoming almost incessant and was increasingly reckless. . . . In his relationship with her he alternated between periods of great self-condemnation . . . and harsh words, telling her he would be "damned glad to get rid of her."

Mr. G. (age twenty-eight) reported intense resentment at not getting complete response from his wife. Further discussion revealed that his feeling of revulsion from his wife was not all due to deficiencies in the sexual relation. Some of his most intense resentments centered around his wife's efforts to control and direct him.

This story repeats earlier patterns of behavior. Mr. G. was the younger of two boys. His mother dominated his father with neurotic behavior. Mr. G. identified himself with his father and adopted an ambivalent attitude toward his mother. He revenged himself upon his mother by becoming the black sheep. This pattern of adjustment unless resolved at adolescence would call for a wife who could play the role of mother on whom he could depend and, at the same time, fight.

Mrs. G. filled this bill almost to a T. Her mother died during her thirteenth year, leaving her with an invalided older sister and younger brother to care for. Her father drank and later her brother followed suit. In this setting, Mrs. G. assumed the responsibilities of a parent in relation to rather dependent persons, particularly with respect to her brother, toward whom she felt the closest attachment. By marrying a person who fitted into the wayward younger brother-son role, Mrs. G. was able to carry over her early behavior pattern.

Tied to these early social roles, Mr. and Mrs. G. could hardly expect to achieve a more mature emotional relationship with each other. The chances of their being happy with other

partners are even smaller. Under the circumstances they are comparatively well mated, because they really do satisfy basic emotional needs in each other. It is at best, however, a lame-duck relationship and, as long as they do not have insight into the unwholesome attitudes which they have carried over from childhood, their marriage is bound to remain precarious and unsatisfactory.

Psychosexual Experience.—Since marriage is merely an outgrowth of preceding preparation, we should expect to find those who make the best adaptations to have achieved the greatest psychosexual maturity before marriage. This involves a full understanding and acceptance of the role to be played in the relationship. Failure to differentiate *biological function* from *social role* has entrenched the subordination of women. The resulting resentment has been responsible for a repudiation of femininity by many women in all its aspects, with disastrous effects on their relationships with men as well as on their own fulfillment as women. It is only the woman who thoroughly understands her role and enthusiastically embraces it who can hope for happiness in marriage. The sexual relationship that she is able to develop is a reflection of her attitude toward this role. Those who have reached this maturity level sometimes seek premarital sexual expression. In line with this, Landis reported that women with adequate adjustments in marriage had more premarital sexual attachments and interests than others (349). This relationship is obscured by social taboos, which prevent overt sexual expression before marriages. Actually, whether the complete sex act occurs before or after marriage is important only from a cultural viewpoint. The important thing for the individual is that progress in sexual development be gradual and intelligent, avoiding sudden jolts and nerve-wracking delays. Since the adjusted member of any culture has by definition interiorized its mores, his desire is to conform and to expect conformity in others. With special

reference to sexual behavior, if in a given society female eligibility for marriage were enhanced by previous childbearing, the prevailing ambition among girls would be pregnancy (340). If on the other hand, as has long been our custom, virginity is the desideratum, there will be a desperate effort to preserve this condition—technically at any rate. Under these circumstances it is not surprising to find a somewhat higher incidence of marital happiness in our society frequently (168, 202, 259, 609), though not universally (349), reported for those who were virgins at marriage. In view of the relativity of mores, we cannot accept these findings as the last word on the subject. Mores are functions of time as well as of space and are undergoing rapid change in Western culture at the present time. What is true today may not be true tomorrow. Virginity at marriage is a case in point. Figures for premarital inter-

TABLE 11.—PREMARITAL SEX EXPERIENCE IN RELATION TO DATE OF BIRTH

Husbands	Date of birth			
	Before 1890	1890-1899	1900-1909	1910 or later
	(N = 174), per cent	(N = 291), per cent	(N = 273), per cent	(N = 22), per cent
1. None.....	50.6	41.9	32.6	13.6
2. Spouse only.....	4.6	7.6	17.2	31.9
3. Others only.....	35.6	27.5	16.5	13.6
4. Spouse and others.....	9.2	23.0	33.7	40.9
Wives	(N = 104), per cent			
	(N = 277), per cent	(N = 336), per cent	(N = 60), per cent	
1. None.....	86.5	74.0	51.2	31.7
2. Spouse only.....	8.7	17.7	32.7	45.0
3. Others only.....	1.9	2.5	2.1	3.3
4. Spouse and others.....	2.9	5.8	14.0	20.0

course have risen from a low of 7 per cent with Davis's rather conservative group in the 1920's to the 25 per cent reported by Landis, and the even higher percentages found by Terman for groups studied in the 1930's. On the basis of past and present trends as revealed in Table II, Terman predicts for the future that virginity at marriage will be close to the vanishing point for boys born after 1930 and for girls born after 1940 (609, p. 321). He considers that at this rate of increase premarital intercourse with the future spouse will be universal by 1950-1955. The significance of virginity at marriage for happiness will vary with its general cultural evaluation, and changes are to be expected accordingly.

The Unmarried Woman.—A substantial proportion of adults in our society fail to carry their psychosexual development to its cultural fruition in marriage. In the handicapped this may indicate an arrest of development. For example, Landis found that women suffering from various forms of *mental* abnormality were often bound to childish attachments which interfered with their assuming adult relationships with the opposite sex (349). They were less likely to indulge in physical intimacies with men and were more apt to express emotionally extreme attitudes toward various aspects of sex than the normal group with whom they were compared. These indications of failure to develop normally were in many cases associated with unfavorable home conditions.

The *physically* handicapped woman is also retarded in psychosexual growth, according to some new material of Landis and Bolles (347). A study of 100 cases including orthopedic defects, spastic paralyses, epilepsies, and cardiac diseases revealed a striking underemphasis of sex in their life histories. Some of these handicapped women seemed to be sexually neuter in the sense that they never passed through the ordinary phases of development. Masturbation, homoeroticism, and heterosexual contacts were much less common than in normal women, and sex possessed little affective value for them. There was no

evidence that the indifference was in reality a Freudian mechanism concealing unconscious desire. Indeed the sexual deprivation was but rarely a source of unhappiness. The physically handicapped woman apparently adjusts her aspiration level to her capacities so as to produce the minimum of frustration and stress.

In contemporary society it not infrequently happens that a restricted early environment produces a "psychological castration" which is more likely to affect women than men because of their more limited outside contacts. In many cases of this kind, energy is directed toward nonsexual objectives and the individuals may grow up as in the case of the physically handicapped, with little sex interest or frustration and the capacity to live happy and useful lives without sex as the focus. In other cases, lack of opportunity for marriage may represent a very severe frustration. The desire for love may continue into late maturity just as in the married, and it may drive these women to build a marriage pattern out of other relationships (421). Sublimation of sexual interests into constructive social channels may be the best solution for increasing numbers of women who are destined to remain single in the generation following the present war. In the past it was little short of tragic for a woman not to marry. Her unhappy lot as reflected in the American novel during the past hundred years is a sorry one indeed. She was seldom the major character and in the rare instances when she was, she was depicted as unattractive, disagreeable, or pitiable (170). The elevation in social status of the woman worker as a result of the conspicuous part she has played in the war should give the role of the single woman more prestige than it has hitherto enjoyed either in fact or fiction.

CONJUGAL BEHAVIOR PATTERNS

First Intercourse.—Whether the first intercourse occurs before or after the marriage ceremony, the psychologically import-

ant thing is that the partners be ready to assimilate the new experience. So important is the bride's reaction to her first coitus that it may serve as an index of later marital adjustment (609). In Davis's study of 1000 married women, nearly twice as many of the happy as of the unhappy individuals found their first coitus pleasant, and fewer of the happy found it repellent (168). Conversely, 36 wives, whom Terman found to have shocked or disgusted attitudes toward first intercourse, averaged below the mean of those who enjoyed it, in general happiness ratings (609). At first sight these correlations might seem to lay undue stress on a single experience. It is not what happens at this time, however, which has such great import for the future. It is rather what has happened earlier in the way of social conditioning which determines the reaction to this experience. Since fear is the archenemy of vegetative function, it is especially important to dispel any fears that may surround the first sexual act. The specter of pain may be ruled out by having the hymen anesthetically ruptured by a physician before marriage (176, 601). The fear of pregnancy is another bogeyman that may haunt the bridal chamber. This in turn may be controlled to the benefit of parents and future offspring by providing the young couple with the necessary contraceptive information (418, 419). With adequate preparation the complete sex act is easily assimilated. As Dickinson and Beam point out, it is only where "an elaborate ceremonial is a cloak for ignorance" that the bridal night is the beginning of tragedy (178).

Female Frigidity.—Faulty attitudes toward sex and the female reproductive functions bring in their wake a wide variety of "women's troubles." We have already noted the importance of attitude on the menstrual function. Other somatic conditions that may have a psychic origin include deterioration of the breasts, pregnancy nausea, sterility, and even fibroid tumors, uterine displacements, and other organic pathologies

(416, 419, 425). In marriage, one of the most troublesome obstacles to sexual harmony is the inability of wives to experience orgasm, the sudden, fully releasing climax of coitus. Although a marriage handicapped by the wife's sexual failure may survive, even happily (202, 349), it could survive more happily otherwise. Dickinson and Beam reported 34 per cent of their maladjusted women lacking in orgasm capacity as compared with only 12 per cent of the happily married group (178). Moreover, a correlation of +.30 has been found between a wife's orgasm capacity and general marital happiness (609), and, according to Hamilton, unless orgasm accompanies at least 20 per cent of copulations there is likely to be trouble ahead (259). In view of these considerations, it is disturbing to find that approximately every third woman is inadequate in this respect (87, 168, 259, 349, 609). Even higher proportions have been as recently reported as 1940 (150). This undesirable situation is in part a relic of the Puritan tradition according to which frigidity is ladylike, as illustrated in the following case of Dickinson's (178, pp. 129-130):

Case 975. A frail and delicate woman of forty-six comes about marital problems. She is pallid, sad, has always been cold . . . She had excessive Puritan training. She and her husband were engaged for years—seeing each other only rarely. "Father told me not to kiss him—mother said she never kissed her husband until after marriage."

No one told her there was any pleasure for a woman until 3 or 4 years after marriage. Relatives told her repressive things about coitus. Her mother said, "No good woman ever has pleasure; passion is for the vile. . . I'd be ashamed if I enjoyed it."

Frigidity is not merely an *absence*, but rather a *blocking*, of desire. The inadequate woman is not indifferent to sex, but as a matter of fact spends more time in sexual fantasy than the adequate (203). In most cases, the trouble is psychogenic. In Dickinson's series of 100 frigid women there was not a single one in which an organic cause proved to be basic (178). It

may represent inadequacy feelings resulting from parental rejection, a retention of childish dependency on parents, a conflict of mores, hostility toward the husband, or an unconscious repudiation of the feminine role. Personality failure, however caused, may be expressed in neurotic frigidity (115, 259, 609). Although certain physical defects may indeed affect orgasm capacity, psychological factors are of much more importance in both cause and cure (484). According to one gynecologist, all cases in his practice except those due to hysterectomy or degeneration of the spinal cord, were accessible to psychotherapy (87). Even in cases of hormonal deficiencies where androgens have been successfully used as sensitizers (245, 522), the resulting improvement in libido may be partly attributed to the psychotherapy which is an inevitable accompaniment of the hormone injections.

Painful intercourse, like frigidity, is often due to inhibitions of a psychological nature (178). A case in point is that of Miss Y, cited by Mengert (415).

The patient, a single woman of twenty-eight years, instructor in a university, complained of painful intercourse. She had been engaged for over a year but her marriage had been postponed for financial reasons. The couple had agreed to indulge in sexual relations during the interim. After a few months Miss Y. began to experience pain. Medical examination revealed no physical cause for the difficulty but the patient was obviously suffering from emotional conflict due to her deviation from her puritanical upbringing.

Male Impotence.—Sexual inadequacy is not limited to the wife but may also occur in the husband with just as grave threat to the relationship. Hamilton states that unless a woman is frigid, marriage to a man who is definitely inferior in sexual capacity is not likely to be successful (259). As in the case of frigidity, impotence is not uncommon. Some idea of its prevalence may be gained from spontaneous questions submitted to the Vienna Institute for Sexual Research. Bien's analysis showed that 32 of the first 50 concerned some form of impotence.

In his opinion, a similar percentage is to be expected from those having sexual difficulties in the general population (88).

Like frigidity, impotence represents a blocking of response to appropriate stimuli. In some cases the source may be found in hormonal or other organic disorders (85, 525), but in the vast majority the cause must be sought in environmental pressures (128, 159). Precipitating factors include fatigue, pain, fear, feelings of inadequacy, and emotional conflict which often concerns the marriage (346, 417, 511, 609). In such functional cases, psychotherapy has been successful when administered either intentionally or incidentally (423).

Patients with partial impotence have been found to recover when merely reassured of their physical normality (385). Treatment with androgens and various physiotherapies, although remarkably effective when there is a somatic basis (571), does not consistently result in improvement in psychogenic cases (128, 159, 346, 423, 494, 571, 666). Since a strong dose of suggestion is administered with every dose of drug or hormone, suggestion rather than hormone may well be the therapeutic agent in successful cases. This interpretation is supported by the fact that no apparent loss results from substitution of a control oil for hormone without the patient's knowledge. In certain cases complicated by severe neuroses, androgens may even make matters worse by aggravating the conflicts, and psychotherapy must first remove the basic difficulty (128).

It is hardly necessary to point out that the mutual adequacy of both marriage partners colors all their sex practices and provides a rich source of relaxation and companionship which vitalizes the whole relationship. Since sexual failure so largely represents social rather than biological difficulties (210), the burden of cure, or, better still, prevention, rests with society.

Coital Frequency.—During the first year of marriage the frequency of intercourse is a more direct reflection of sexual drive than it is later on. As time passes, coitus often becomes so

routinized that sheer frequency of occurrence denotes little concerning either sexual drive or general adjustment in marriage. Unhappy couples, even those on the point of divorce, indulge almost as often and sometimes even more often than happy pairs (178, 609). It is not the absolute frequency but the relative satisfaction of both mates that is important. A given numerical index might signify exact correspondence of sexual need between marriage partners, or it might reflect wide discrepancies according to whether it represented a mutual spontaneous expression or domination of one partner over the other. In this connection we may point to Terman's data showing an apparently greater role of the wife in determining coital frequency. Curves comparing preferred with actual frequencies showed close correspondence for wives but discrepancies for husbands indicating desire in excess of fulfillment (609). Obviously such discrepancies reflect the cultural pattern. That cases where the wife's passion exceeds that of the husband are rarer is to be expected. But in whichever direction the discrepancy lies it militates against conjugal bliss (139), and equality in sexual drive, whether expressed in much or little coitus, is conducive to the greatest satisfaction (609).

TABLE 12.—AVERAGE COITAL FREQUENCY PER MONTH BY DECADES OF AGE
AND BY OCCUPATION
(Mean number of times per month)

Age	A. Farmers		B. Merchants and bankers		C. Professional men	
	N	Mean	N	Mean	N	Mean
15-19	14	8.9 ± 1.8	31	5.6 ± 0.8	46	4.2 ± 0.5
20-29	29	15.4 ± 1.6	56	12.9 ± 1.5	54	9.7 ± 0.9
30-39	37	14.8 ± 1.3	65	13.7 ± 1.2	68	11.8 ± 0.8
40-49	39	13.7 ± 1.3	67	11.5 ± 0.8	68	10.1 ± 0.7
50-59	39	11.1 ± 1.3	66	8.7 ± 0.7	64	7.0 ± 0.5
60-69	28	7.1 ± 1.4	49	6.4 ± 0.6	53	4.4 ± 0.4

Cultural factors are also responsible for frequency differences in occupational groups such as those indicated in Table 12 based on Pearl's data (480, p. 203). Consistent with Pearl's findings for the professional group are statistics gathered from other high-income groups indicating an average of once or twice a week (259, 609).

Fluidity of occupational level and its dependence on environmental factors rule out a biological interpretation in terms of group differences in sex drive. The most likely explanation is that sexual intercourse provides an important outlet for tensions in groups whose recreational resources are limited. At the higher socioeconomic levels sexual interests compete with a wide variety of vocational and avocational interests and, after the novelty wears off, stabilize at a relatively low level (278).

In addition to general cultural factors, nonsexual motivation of a more personal sort may determine coital frequency. For example, intercourse may be demanded by a domineering husband as his male prerogative or as a test of his potency. A wife may seek coitus as a means of reassurance of her husband's love. Refusal may be even more significant than initiation or acceptance, because it may be used by either spouse as a weapon of retaliation for frustration in other phases of the marital relationship and, as such, may indicate important underlying grievances (430).

Intramarital Experimentation. The cold statistics of marital coitus not only offer few clues as to motive but they reveal nothing as to method. Intercourse conceals a wide variety of sex practices rich in personal and social significance. They have been carefully tabulated in such works as Hamilton's (259) and pictorially represented in Dickinson's "Atlas" (175), but they have not been adequately interpreted in terms of total personality. Coital position may indicate dominance interrelationships in man as in lower organisms. This is so well recognized among the Trobrianders that a commoner man married to a noble

woman is not allowed to be physically above her in sexual intercourse. In our own society Maslow's work helps to interpret similar phenomena (397). He suggests that the dorsoventral position so often noted in lower forms is used habitually by men who completely dominate their wives and do not value them as individuals. The almost universal ventroventral position reflects a closer, more equalitarian relationship between sexual partners. Face-to-face positions occur in marriages between secure people, while cases in which the wife lies above the husband frequently indicate female dominance.

According to Maslow, coital position does not always have dominance significance but only among insecure persons who feel compelled to assert their dominance in every relationship. We should not overlook the fortunate individuals who combine high dominance with high security feelings. In such people sexual behavior is a relatively direct expression of spontaneous sex drive. Free from the restrictions of traditional taboo or personal timidity, they are able to enjoy to the full their sexual companionship. Marriage between two such individuals involves experimentation of all kinds. Various coital positions and many forms of deviant sex behavior are tried out for the mutual satisfactions they yield.

Extramarital Experimentation.—Sometimes the spirit of experimentation goes beyond the bounds of matrimony. In the emotionally secure, the extramarital affair may provide an outlet for sexual energy not entirely absorbed by the spouse. Landis found some cases of this sort among the most mature and independent women of his group (349). In spite of happy marriages they were sexually not wholly satisfied by their husbands. In the emotionally insecure, however, as Maslow suggests, the motivation of the extramarital affair is not primarily sexual. It is too hastily consummated to yield the satisfactions of a long-continued monogamy. It should be regarded as a "security affair" through which the individual hopes to gain needed

reassurance as to personal attractiveness and, in cases of homoerotic fear, reassurance as to sexual normality (115, 397).

Sex relations out of wedlock are sometimes used to work off unconscious hostilities toward the spouse. In this connection it is interesting to find that exhibitionism and peeping frequently have a similar significance. In the present writer's clinical experience, such perversions often represent overcompensation resorted to by ineffectual or sexually inadequate men as a means of punishing their wives for receiving the attentions of other men and at the same time of bolstering up their self-esteem. A similar interpretation is also suggested by other data (31, 549).

For the most part, extramarital sex behavior of various sorts indicates personality maladjustment. It was found in 24 per cent of abnormal as compared with 4 per cent of normal women (349). Negative correlations of -0.52 for husbands and -0.46 for wives have been reported between frequency of desire for extramarital intercourse and happiness in marriage. In view of its relationship with general maladjustment, extramarital interest, whether in deed or in fantasy, should be regarded in most cases primarily as a symptom rather than a cause of marital unhappiness.

Although we may have to penetrate beneath the extramarital fling to find the basic cause of the unhappiness, we need seek no further for the precipitating cause of final disruption (139). In our society with its emphasis on private ownership, the "triangle," no matter what its motivation, cannot be successfully combined with most marriages and provides an unassailable excuse for divorce. In fact, social pressure is so great that the individual is hardly permitted to overlook an indiscretion of his mate's but must display the expected righteous wrath and, by legal action, vindicate himself in the eyes of all. Usually the social stereotype has been so thoroughly interiorized that he sincerely believes himself outraged and in the absence of

psychiatric advice is likely to regard the infidelity as an unpardonable sin.

THE PREDICTION OF HAPPINESS IN MARRIAGE

Approaches to the Problem.—In the course of our discussion of the various aspects of sex in marriage we have pointed out their relationship to happiness in marriage as a whole. This leads us to the question of prediction. If we know the factors correlating with success and failure, their measurement *before* marriage should enable us to predict the outcome. Indeed Terman considers the evidence so encouraging as to warrant the startling assertion that the compatibility of a given couple may be predicted from scales now available about as effectively as college success from a three-hour scholastic aptitude test or four years of high-school marks (609). The evidence referred to represents several different approaches to the problem. One approach is through statistical analysis of anonymous questionnaire returns from large groups of subjects. Of this type, Davis' work on women college graduates has become a classic (168). On the basis of a crude rating scale she separated happy from unhappy couples and compared them with respect to many factors chiefly of a sexual nature. A decade later, Burgess and Cottrell introduced a more elaborate measure of adjustment in marriage, based on correlations of a wide variety of personal interactions with the subjects' own happiness ratings (115). They took the important further step of working out a prediction scale from correlations of background information with total adjustment scores. Terman and others, following Burgess and Cottrell's general method with certain elaborations, have also worked out a prediction scale (609). Since both these studies used couples already married, the results suffer from a marital "halo error." The existing state of happiness or unhappiness obviously invalidates the method as a means of predicting the future compatibility of a couple before marriage. An

attempt is now being made to validate the technique by starting with engaged couples and following them over a period of years. So far the results appear to confirm the hopes of the originators (661). On the basis of over 500 couples, Burgess and Wallin report correlations of more than 0.40 between adjustment in engagement and after three years of marriage (118).

Another approach to the problem of predicting marital happiness is clinical. This method has the advantage of dealing with the individual rather than the average and of thus giving a longitudinal in contrast with a cross-section picture. Psychoanalysis in the course of unearthing sources of personal maladjustment in general has thrown much light on the psychodynamics of marital conflicts. A more specific attack on the problem was made in Hamilton's famous work which came out almost simultaneously with that of Davis (259). He introduced a controlled psychiatric interview which required an average of eight hours for each subject. On the basis of data obtained in this way from 100 married men and 100 married women, he compared the happily with the unhappily married on a large number of items and worked out a marital satisfaction score. Similar in general method was the comparative study of sexual development in normal and abnormal women recently published by Landis *et al.* (349). Dickinson and Beam's *A Thousand Marriages* (178) is altogether unique inasmuch as it is a series of medical case histories covering a half century of gynecological practice. It gives a perspective on the whole subject of marital adjustment to be found nowhere else.

Because of the discrepancy between verbal expression and behavior, Moreno claims that his psychodrama offers a more valid method for the diagnosis and cure of marriage difficulties than the psychoanalytical or interview techniques. On a stage, complete with lights to fit the mood, married clients are encouraged to work out their spontaneous solutions to a variety of marital problems. After the performance their reactions are

analyzed and inadequacies pointed out (427). In cases that require divorce, the therapeutic theater may be of further use in helping the partners to understand and accept it as the best solution (568).

Still another way of approaching the problem is through the sociological study of domestic discord. Typical of this approach is Mowrer's analysis of factors causing difficulties in cases from the Jewish Social Service Bureau of Chicago (430). Ciocco has contributed to our knowledge of factors in marital disruption in a novel way by analyzing the letters received by a popular public counselor from 390 women requesting advice on their domestic problems (139). Such studies of marital pathology aid in prediction by indicating the danger points.

We shall not risk the reader's patience by presenting the separate studies. The material is meticulously detailed and, as William James once said of the forbidding psychophysics, "Those who desire this dreadful literature can find it" (310, p. 549). In the present case they can find most of it conveniently reviewed by Terman and Johnson (610) and by Burgess (114). Instead of presenting the original results, we prefer to trace the broad outlines of the collective findings and their implications for predicting happiness in marriage.

The Experience Variables.—The studies are in striking agreement concerning the importance of the early home situation for marital success. Happiness of parent's marriages is paramount. Moreover, a wholesome relationship with parents involving easy discipline and absence of conflict is favorable. The security of deep affection for parents is desirable provided that it does not interfere with emotional growth in adolescence. Moreover, the socializing effect of a number of brothers and sisters seems to be beneficial. In boys physically attractive, sisters are an especial advantage unless fixations result. In a healthy home atmosphere sexual questions arise naturally and are as naturally answered. In this way the individual is able

to avoid the unfavorable attitudes so disastrous to later adequacy in marriage.

Personality Patterns.—As we have stressed throughout our discussion, the happy person has the best chance for a happy marriage. This is borne out by the prediction studies, which reveal among the happily married a preponderance of well-socialized, stable people who accept life as it comes and are tolerant and generous toward others, especially their partners (322). Their socialization is expressed in their conformity to current mores and their interest in uplift activities. In contrast, the unhappy spouse more often displays the symptoms of emotional insecurity indicated by self-absorption, lack of confidence, and hypercritical and unsympathetic attitudes toward others. It is hardly surprising that women suffering from maladjustments severe enough to be diagnosed contribute generously to the ranks of the unhappily married (349, 602).

Personal traits also play a part in determining the outcome of maladjustment in marriage. Those whose marital blunders end in divorce make a better showing as far as personality adjustment is concerned than those who fail to break off the unfortunate relationship (315). A group of divorced men were found to be less irritable and neurotic than a comparable group of unhappily married men. Compared with the happily married they were less cautious and more willing to take risks. Moreover, the divorced men had more social interests than married men whether happy or unhappy. As for women, the divorced were found to be less docile and conventional, and stronger in dominance and drive than those who remained in an unhappy marriage. They commanded respect for their rugged strength and self-sufficiency.

For marital happiness the personality pattern seems to be one of flexibility, willingness to fit in and make the best of things as they are, rather than to express the self too forcibly or to try to reform the partner. We should bear in mind that the correlations reported merely indicate association and in them-

selves do not imply causal connection. Theoretically there is as much justification for thinking that an unhappy marriage would distort the personalities involved and result in neurotic tendencies, as that these tendencies, existing previously, would result in the unhappy marriage. Although the issue is far from settled, the evidence on engaged couples, which has direct bearing on the problem, gives weight to the personality correlates as *causal* factors in marital adjustment.

Do Like Marry Like?—The question of the attraction of opposites has been the subject of a number of studies (496). The findings are in essential agreement that the affinity of like for like exerts a greater influence in mate selection than the attraction of opposites. Recent investigation of 1000 engaged couples confirmed previous results obtained on married groups. Homogamy was reported for height, weight, health, physical attractiveness, neurotic tendency, and a variety of personality traits (116). An interesting point was that even greater similarities were found in the *cultural* factors of family background, nationality, religious affiliation, social participation, conceptions of marriage, and courtship behavior (117). Supporting evidence of the importance of community of interests for marital success has been reported concerning attitudes toward feminism and the family (332, 333). It appears from this evidence that similarities in cultural values are of greater importance in conjugal compatibility than temperament.

SEX IN MARITAL HAPPINESS

The trend of the literature is to attribute to sex a secondary rather than a primary role in marital adjustment. Personal congeniality resulting from shared values and social attitudes seems to lead to harmony in the physical relationship. Happily married people express an approximate equality of drive, mutual enjoyment of sexual relations, and the absence of desire for or actual indulgence in extramarital affairs. Unhappy couples, on

the other hand, complain about the spouse's sexual behavior, frequently refuse requests for coitus, and find it unpleasant when it occurs. At the same time they indulge in a good deal of sexual fantasy and often are guilty of promiscuous adventures. Such events are for the most part symptomatic of personal incompatibilities. Certain it is that sexual factors are not alone responsible for marital happiness. These findings show the interdependence of sex with the many other factors contributing to adjustment in marriage. Sex as such is not solely responsible for happiness or unhappiness, but happiness or unhappiness is immediately reflected in the sexual sphere. In other words, sex may be regarded best as a sensitive though not infallible marital barometer.

WAR MARRIAGES

What we know of the general run of middle-class marriages is not directly applicable to the less conventional forms. The war marriage is a case in point. Marriages contracted under the stimulation of an emergency cannot be judged by normal standards. Evidence of the greater risk entailed may be found in the statistics following a number of major wars (253, 471, 639). It is also indicated by the lowered happiness scores reported by Terman for couples married between 1915 and 1919 in comparison with the total group (609). The general social instability is reflected in the instability of these marriages. Although the length of premarital acquaintance and even the length of engagement did not differ appreciably from those of the regular marriages in Terman's study, war marriages are often the ill-advised products of war hysteria and would not have occurred under usual circumstances (253). Moreover, the lack of continuity in the relationship makes it impossible for the couple to work out their adjustments together. The heightened glamour and overstimulation in the war setting are poor preparation for the prosaic adjustments that must inevitably follow (101). Even

greater threat comes from the changes in personality and outlook during the long separation periods. This is so serious as to constitute a threat even to old married couples. Under normal conditions man and wife have an opportunity to grow and change together gradually. In wartime not only do they fail to enjoy this mutual interchange, but they are each making acquaintances among the opposite sex. The relaxed mores under which these new contacts are made also contribute to the disruption of the marriage bonds (101, 471).

Although the prospects for war marriages in general are less encouraging than for normal marriages, each case should be individually evaluated. If entered upon by mature, emotionally independent persons whose anticipations take into account the unusual and precarious features, the war marriage may prove even hardier than the conventional variety (505).

FAMILY STRUCTURE AND SOCIAL ROLE

The marriage relationship is not adequately fulfilled either biologically or psychologically unless it results in a new family. Once again we find attitudes of paramount importance for they may determine whether or not conception will occur. It is almost a commonplace for pregnancy to follow the adoption of a child in a sterile couple. The following case illustrates psychogenic sterility (508):

The wife had been denied feminine behavior in childhood because her father expected her to compensate him for his frustrated desire for a son by behaving more like a boy than a girl. After her marriage she still lacked the opportunity to play the "feminine role" because she had to continue working to satisfy her husband's emotional dependency on her. Although both partners expressed a desire for a child they remained sterile until they decided to adopt a baby. When the date was set and arrangements made for the wife to give up her job, she suddenly conceived. Although the details of the psychosomatic mechanism are not known, the reduction of the wife's hostility toward her husband presumably played an important part in the total picture.

No less important are psychological factors in pregnancy. Difficulties in the domestic situation are likely to become acute at this time. Economic problems may be expressed in anxiety (292), while resistance to the female functions may be manifested in nausea (419). Indeed, some form of invalidism is almost inescapable because of prevailing social expectation of varying degrees of incapacitation. This has usually meant a discontinuation or marked change in the expectant mother's daily routine which may induce emotional conflict. The continuation of normal activities as far as possible by normal women would make for a more wholesome attitude toward maternity.

To meet adequately the challenge of child rearing demands emotional maturity on the part of both parents (612), with a full appreciation of their respective roles. As we have repeatedly pointed out, the changing family pattern of Western culture makes it difficult for adults as well as for growing boys and girls to know what is expected of them. In the patriarchal structure which still persists in much of Europe authority is vested in the father who provides the economic support and metes out the punishment. The role of mother is to give suck to the children with whom she shares fear of "the master of the house" (224, 225). In American society democracy has led to the overthrow of patriarchy in greater or lesser degree according to the subcultural setting of the local community. In its place, there is no single democratic pattern. Kirkpatrick describes three wifely roles: the *traditional wife and mother* carries with it the privileges of security, respect, domestic authority, economic support, and loyalty on the part of the husband. It entails the obligations of rearing children, making a home, and rendering domestic service. The *companion*, in contrast, involves sharing pleasures with the husband, receiving emotional response, and leisure for society and education. In return for these privileges, the good companion preserves her beauty, provides her husband with ego and libido satisfactions, and makes advantageous social

contacts for him. The third role is that of *partner* with economic independence, equal authority in family finances, and social acceptance on an equal footing (335). There is much overlapping among these various roles leading to confusion and conflict on the part of both men and women (336). There is even evidence of an increasing discrepancy between the sexes in their attitudes toward women's role (331). Among married couples, such discrepancy was found to be greater for the unhappy. In line with this is the tendency for male domination (139) and patriarchal attitudes on the part of the husband to be associated with marital maladjustment (332).

In apparent inconsistency with the rejection of male authority is the contemporary American woman's adherence to the social stereotype of "male provider." In a study of disruptive factors in marriage, nonsupport was in the lead. The most significant finding was the fact that the greatest number of complaints came from women with independent incomes. These cases obviously represented not real need, but feelings outraged by the husband's failure to measure up to social expectation (139). As long as the husband is expected to be the sole supporter of his family, every woman with a job becomes a threat to his security.

Within the home, the institutional vestiges of male authority threaten the wife who in the name of freedom has usurped the power for herself. Crumbling patriarchy has given way to the stern matriarchy of the domineering mother. Since this domestic despotism is not upheld by social sanctions, it carries a note of defiance which is communicated to the children to the detriment of their emotional development (183, 408). Instead of the warmth and reassurance they need for growth, they sense rejection and respond with fear and resentment (225). The following case cited by Weigert symbolizes the tragedy inherent in the confusions and frustrations of the mother role (648):

"Mrs. X." suffered a reactive depression upon the induction of her sons into the armed forces. Before her marriage, she had been frustrated in

her ambitions by the traditions of her parental home. Her father was convinced of the intellectual inferiority and emotional infantilism of women. Her mother was a typical Victorian housewife.

During marriage, she vacillated between ambition for a career and discouraged withdrawal into the security of family life. Each pregnancy was accompanied by misgivings as to whether or not she wanted the child. Her repressed ambitions were taken out on her children in overprotection against which they protested vigorously. Their departure for war aroused feelings of guilt over her personal ambitions and precipitated her collapse.

The situation might be mitigated if fathers were to exchange roles with mothers and make up to their children for the mothers' domination, by surrounding them with the love their mothers withhold. This, however, is not the case. Within the empty shell of outmoded patriarchy the father remains a figurehead. The outward form has not changed but it has lost its substance. In other words, fathers have lost their old authoritarian role in the family and have not assumed any other in its place. This observation was borne out by a recent survey of the attitudes and activities of 300 fathers which indicated that they had not thought very much about the role of father. They continued to shoulder the economic burden of material provision. They were also aware of the importance of companionship with their children and, in the majority of cases, felt that they were pals. The fathers gave their children social and intellectual guidance during adolescence, but only a little more than one-third of the group took the responsibility for their sex education. In general, the father's role as depicted in this study seems very amorphous and inadequate. Since the time spent at home is sufficient for plenty of fathering, the chief need seems to be a clearer definition of the role (230).

A more widespread adoption of the partner role in marriage would be in keeping with the shift from the patriarchal to the democratic family structure. It would mean mutual sharing both in the world of achievement and in the world of sentiment.

If the burden of success which the father carries alone were divided with the mother, he would be psychologically freer to cultivate his family. If, in turn, the mother were given the opportunity of expressing herself in the outside world, she would be relieved of the need for compensatory arrogance within the home and could love her family without ambivalence.

CHAPTER XIV

SEXUAL DECLINE

Adolescence finds its companion piece in senescence. The many parallels remind one of a mountain climber who after a steep ascent lingers long at the summit to enjoy the broad perspective he has so arduously achieved. Then as the shadows lengthen, he reluctantly starts on his downward trail. The terrain has not changed, and many of the same obstacles are encountered on the way but now from the opposite direction.

PHYSIOLOGICAL CHANGES

Endocrine.—The adolescent endocrine upset incident to the onset of reproductive functions is matched by a corresponding disturbance at their close. Although sexual decline is very gradual in both sexes, it is made more conspicuous in women by the cessation of menstrual periodicity (214). Among white women of Western culture, this process takes place during the forties, although it has been noted as early as thirty-five among Negroes and as late as sixty among the Senegalese (412, 576). Unless the depression of ovarian activity is accompanied by a corresponding degeneration of the pituitary, it brings in its train a temporary derangement of the entire endocrine network. The pituitary, usually balanced by ovarian and adrenal estrogens, secretes gonadotrophic hormone to excess but to no avail because it is incapable of stimulating the sluggish ovary (652). The special thyroid- and adrenal stimulating principles of the anterior pituitary often complicate the picture. Different patterns of menopausal symptoms have been distinguished as correlates of different glandular patterns during the period of transition (284).

Eventually, an adreno-pituitary balance succeeds, as it once preceded, the ovario-pituitary interchange of the active reproduction period (516).

Neural.—The endocrine changes exert a disturbing effect on the autonomic nervous system which causes neurological reverberations in certain individuals. In women the menopausal syndrome includes such neural signs as fatigability, insomnia, hot flushes, vertigo, cardiac irregularities, as well as the more psychological disturbances of anxiety and depression (122, 387, 555, 650). Vaginal smears provide an index of estrogen effects. With dosage properly adjusted to the patient's needs, atrophic smears can be advanced within a short time to a phase characteristic of the height of ovarian activity (86, 474, 521, 544). Whether or not the endocrine replacement is accompanied by psychological relief depends on the patient's previous emotional adjustment. Women of good morale and outlook can absorb more organic insults and are more receptive to beneficial effects of hormone therapy (555).

Analogous changes occur in men (412, 265), but they set in later and follow a slower course so that the organic symptoms tend to be somewhat attenuated (462). Moreover, there are no horror stories to aggravate the psychological discomfort. The efficacy of androgenic treatment is illustrated in the following case history (384, p. 1042):

Case 7. A man fifty-eight years of age consulted the doctor complaining of irritability, excitability, and melancholia, accompanied by almost complete sexual impotence.

Examination revealed rather small testes and a slightly enlarged thyroid. The administration of a powerful androgen, *testosterone propionate*, brought about rapid improvement. Within approximately two weeks he was nearly normal sexually, and his melancholia and irritability had subsided markedly. After 16 months of treatment his potency was still normal, and there was only the slightest occasional suggestion of depression.

These striking effects match those of endocrine administration in lower mammals. We have suggested that at the human level

there is in addition a psychological factor which invariably accompanies the injections and usually supplements and reinforces the glandular component. It has even been found to function with notable success in the absence of hormones.

PSYCHOLOGICAL CORRECTIVES

Attitudes.—So important are psychological imponderables that they may compensate for and thereby obscure the very symptoms of which the patient complains. For this reason, although the physiological disturbances may be subjectively marked, they are difficult to measure. In an attempt to do so, Seward and Seward (544) applied a series of psychomotor tests to a small group of women complaining of menopausal symptoms. Comparison of performances after estrogen replacement with those following control injections of saline solution failed to reveal consistent differences. Apparently the tests served as a challenge to the subjects, putting them temporarily on their mettle, thereby enabling them to make a creditable showing. In the humdrum of their daily lives, however, they were free to give way to their symptoms.

Further evidence of the role of motivation appeared in the upward trend of morale throughout the experiment, a trend which was uninterrupted by the substitution of control dose for hormone. So therapeutic was the effect of serving in the experiment with the personal attentions it involved, that the subjects enthusiastically defended the treatment despite the recurrence of organic symptoms. For example, after two weeks of salt injections one subject, while forced to admit that she felt no stronger, insisted that she was mentally improved and more stable emotionally. Another contended in the face of hot flushes that if it were not for the treatments she could not keep up. In still another case a return of insomnia was blamed on everything except the inefficacy of the "shots." These findings, in confirmation of those reported by others (261, 524, 555), emphasize

the importance of attitude toward the climacteric experience. Although removal of physiological symptoms by endocrine therapy may be desirable, it is of even more importance to reorient the whole personality by means of psychotherapy. Seen in the light of a constructive general outlook, the specific symptoms lose much of their power to disturb.

Personal Equation.—Apparently it is not the occurrence of the physiological symptoms as such that is significant for adjustment but rather the meaning attributed to them by the patient. In our competitive society the chief need of the individual member is some measure of personal security. Anything that interferes with its attainment endangers his happiness. Certainly with the high value placed on sex in Western culture, the onset of physiological decline is a serious threat to social survival (477). Particularly is this true for women, who to an unfortunately large extent still acquire and maintain their status through the arts of love. The greater independence of men explains in part why their psychological reaction to climacteric changes is less extreme and less frequently results in psychotic breakdown (309, 468). In either sex, individuals with a secure and happy history behind them come through this critical period with the least personality damage. Ability to cope with problems of sexual decline depends on previous preparation no less than ability to cope with adolescent and adult problems. A person who feels himself a dynamic part of the social group, contributing to it through useful work, is able to assimilate the disagreeable aspects of the climacteric with a minimum of stress. For him they indicate merely the temporary inconvenience of transition from the active responsibilities of maturity to the quieter tempo and greater personal freedom of later life.

For the insecure person with rigid attitudes and little humor the climacteric may assume an air of sinister finality. The changed physiological status serves only to accentuate his feelings of inadequacy. Unable to face the future he looks back into the

past, dwelling on the might-have-beens. With past and future offering so little comfort, his only anchor is the present. Under the circumstances, a catastrophic experience such as the death of spouse, loss of position, change of residence, and other unforeseen events, may be sufficiently traumatic to bring about the collapse of his brittle adjustment (462, 469).

Psychopathology.—Climacteric breakdown may appear in a variety of psychoneurotic symptoms. One patient may complain of vague, vast, formless fears and suffer from groundless jealousies (469). Another with perfectionistic tendencies may be assailed by more specific anxieties lest his scrupulous inhibitions give way (261, 652). In others the neurosis may center around such symptoms as unreality feelings, compulsive acts, hysterical phenomena, functional visceral complaints, or phobias (122).

In rare cases more extreme personality deviations occur, manifesting themselves in the form of any psychosis (201, 205, 311). The changes of psychosomatic involution, however, are especially conducive to a particular syndrome, involutional melancholia, in which emotional depression is the principal feature (390). Guilt feelings, expressed either directly or projected in paranoid fashion, often play a conspicuous part in the picture (428, 580). Episodes of the most acute anxiety and despair characterize the disorder during which the patient may wring his hands and pull out his hair. Under the stress of inner turmoil there is naturally a loss of interest in the ordinary affairs of life, with consequent attention and memory difficulty (652), sometimes leading to dementia (252). Taken as a whole, the picture is one of an overwhelming sense of inadequacy.

Climacteric maladjustment is also expressed in the sphere of sexual and family life. In a critical study of the life histories of 50 cases of involutional melancholia, a large proportion of the married patients, both men and women, were found to be sexually inadequate (469). It is not without significance that the

women who had children with whom they had maintained good relationships were among those who recovered. The psychosis obviously did not penetrate their personalities so deeply. The normality of their family life may in itself have served as a protective sheath and also provided a strong incentive to recovery. Of undoubtedly greater prophylactic importance, however, was the fortunate combination of factors, learned and unlearned, which made them sufficiently normal in the first place to have established a wholesome family life.

Treatment for involutional melancholia as for the typical menopausal syndrome must involve a reorientation of the whole person. Hormonal replacement helps by relieving physiological discomfort but gives disappointing results for psychological symptoms (468, 507, 533). Psychotherapy must be aimed at freeing the emotions. Sympathetic attention to the patient's troubles affords release. Relaxation of various forms also has a beneficial effect. According to Palmer (468), no method of discharging accumulated tensions in the psychotic cases can compare in therapeutic value with convulsive shock treatment.

SEX IN THE AGING

In our society reproductive and sexual functions are often confused. Because of the glorification of youth it is customary to regard people past reproductive activity as past sexual activity also. This stereotype is reflected in the apologetic attitudes frequently expressed by older patients toward their own sexual indulgences. Western culture does not worry about the sex practices of the aging as it does about those of youth, but it unwittingly taboos them by ridicule. In so doing it unnecessarily restricts the range and richness of the individual's social relationships and turns him in upon himself. Just as we found society responsible for the storm and stress of adolescence, we find it no less responsible for the storm and stress of senescence.

Impotence.—The combined physiological and social limita-

tions on sex decrease the individual's general feeling of adequacy and lead directly to sexual impotence. The interesting thing is that the impotence may be more psychic than organic. Certainly frigidity is not an inevitable outcome of menopause if we may judge by one of Dickinson's patients, who, though over sixty, became so erotic during a pelvic examination that it was necessary for him to inflict pain to spare her the embarrassment of orgasm (178). Climacteric impotence and frigidity often represent a fear reaction to socially expected change and may even anticipate the major physiological changes. In his clinical practice Hamilton reported that the men who came for relief from failing sexual potency were between thirty-seven and forty years of age—well ahead of physiological climacteric (261). He pointed out that from the late thirties on there are both conscious and unconscious reactions to sexual decline which are of the greatest importance. Cases of this sort easily yield to psychotherapy. Even the postclimacteric impotence does not seem to be a terminal age change but may be reversed during psychoanalysis. Hamilton cites cases of elderly men who after the absence of sexual desire or erections for periods of from five to fifteen years have responded to psychotherapy with erections and erotic dreams with emissions. Thus impotence in the aging, to a surprising extent, is a product of psychological attitude.

Coital Frequency.—Decrease in sexual potency whether functional or organic is reflected in decreased frequency of coitus. In Table 13 are shown the average estimated frequencies per month reported by Pearl (480) and by Terman (609). These results show a progressive decline from the third decade. On the basis of additional material Pearl would place the peak of sexual activity even earlier, in fact prior to the age of twenty. Terman's data were obtained from subjects of varying ages whose estimates were made on the basis of *present* performance. In contrast, Pearl's data represented the reminiscences of a group of 67 men married between twenty and twenty-four years

TABLE 13.—ESTIMATED AVERAGE COITAL FREQUENCY PER MONTH

Decade	Pearl	Terman
3	14.7	6.3
4	12.9	5.0
5	9.1	4.1
6	6.3	2.9
7	3.1	1.4
8	1.2	

of age, whose present age averaged sixty-five. Their estimates of coital frequency were based on memory of *past* performance. A comparison suggests that one's sexual prowess is greater in retrospect than in actual accomplishment. The same mechanism accounts for the exaggerated satisfaction attributed by widows to their marital sex relationships (178).

In spite of different absolute frequencies, the nearly linear descent of the curves is at once apparent in both sets of data. It would be an oversimplification to attribute the falling off of coital frequency exclusively to waning potency. We cannot even be sure that it is the most important factor since other motives so often determine sexual behavior. There are also practical difficulties in the way of sexual expression in older people. They have fewer opportunities, largely because of the stereotype of middle-aged staidness. Moreover, they have less time for relaxation, at least until after retiring age, because of family and financial responsibilities. These and other factors help to explain the trend toward less frequent intercourse with advancing age. Clinical analysis of individual cases is needed to reveal the significance of coitus in the lives of the aging.

Autoeroticism.—The climacteric frequently has an introverting effect on the individual. Feeling at a disadvantage in coping with immediate realities, he is likely to lose contact with others and become absorbed in himself. Thus we encounter a "negative phase" in reverse. The individual is regressing to earlier modes

of adjustment and entering upon his second childhood. The path of least sexual resistance is masturbation, which is widely practiced in the later decades. It is of more common occurrence in the sixties than in the previous two decades (261). Among widows over forty, autoerotic practices are almost universal but reluctantly admitted because of disapproving mores (178). Psychosexual regression often leads to even more infantile forms of satisfaction. As a result of his extreme self-absorption the senescent person is apt to become a hypochondriac, preoccupied with the homely functions of digestion, excretion, and other bodily processes.

Sexual Abnormalities.—During the disturbances of adolescence and senescence, inhibitions do not function so rigidly as at other periods, and impulses break through which are normally held in check, thereby causing the individual great anxiety. He may suddenly become aware of homosexual trends he did not realize were there. Insecure persons are often shocked to find that they have been harboring sado-masochistic impulses which have been hitherto successfully repressed. And so with many other socially unacceptable sexual impulses, including pseudo-erotic advances to younger members of the opposite sex. As in the case of the extramarital affair, such adventuring is usually motivated by a need for reassurance as to personal charms rather than by pure eroticism.

CASTRATION LOSSES AND THEIR REPLACEMENT

Behavioral Effects.—The sexual decline that sets in slowly in the normal course of senescent events is only half the story. We must still account for the sexual decline that presumably follows premature loss of the sex glands. Castration has been practiced for various reasons from as long ago as the eleventh century B. C. down to the present time. Eunuchs abounded in the ancient Egyptian, Roman, and Byzantine courts and may be found today as guardians of Oriental harems. Superstitions

of various sorts, such as imbecility and incapacity for work, have grown up about the effects of castration. Direct clinical observation is the only way of getting at the truth. Interesting material on men has been provided by members of certain religious sects, by sex criminals castrated as a therapeutic measure, and by medical cases of war injury and surgical amputation. Tauber's review of the literature in this field reveals not a single pattern but a wide variety of behavior following castration (607). Although libido and potency may be reduced, it is not uncommon for sexual behavior to remain unchanged. For example, a member of the Skoptsi, an ancient Russian cult, examined at the age of forty-two, claimed to practice daily coitus although his testes had been removed at twenty-one. Sexual zeal may even be augmented after castration. We may cite the case of the fifty-three-year-old patient who had been gonadectomized because of tuberculosis at twenty-four. Before the operation his sexual vigor was poor, with coital frequency of once a month. After the operation he noted a return of sex desire while still at the hospital. Later he had intercourse several times a week not only with his wife but with other women as well. His increased potency continued for the 30 intervening years with only slight decreases at natural climacteric. Convincing evidence in the same direction came from a study of more than 200 war-wounded patients in whom both libido and potency were maintained indefinitely after accidental castration (351). Other cases have also been reported in which penile erection and coitus were found to continue almost unabated after castration (262, 486).

For the most part male castrates present the expected picture of sexual decline complicated by the nervous and vasomotor symptoms which characterize the climacteric. As in senescent cases replacement by androgens is often effective. For example, a forty-two-year-old man whose testes had deteriorated as a result of a hernia operation four years earlier, showed marked

improvement in strength and libido after only one week's administration of testosterone propionate. The treatment was continued for three weeks, followed by the injection of sterile water. The patient continued to feel strong and happy for a few weeks after the control dosage was started before he was again beset by fatigue and depression. Renewed androgen administration restored his stamina (296).

The wide range of individual differences in castration "tolerance" may represent differences in compensation for gonadal insufficiency by other glands or in the threshold of the central excitatory mechanisms. Further research is necessary before we can untangle the intricacies of the endocrine network involved and make use of that knowledge for prediction and treatment in individual patients.

The most extreme effects are found in cases in which the castration occurs before puberty or in which there is a primary failure of the gonads to develop. Not only do such people suffer from a lowered energy level and sexual inadequacies, but their effeminate figures and voices and generally youthful appearances are a constant source of embarrassment (264, 325, 628, 633). It is no wonder that many do not fit into a society which rewards the go-getter, but tend to withdraw into their "shells" (506). The following case of eunuchoidism in a young man concretely demonstrates these points (127):

The patient was a clerk in an accounting department of a fire insurance company. He was unmarried and lived with his mother and six unmarried siblings. He came to the psychiatrist complaining of sensitivity over his youthful appearance.

Up to puberty his behavior had been normal. His failure to mature and his lack of sex interest, however, undermined his self-confidence and he developed perfectionistic trends and religiosity. His emotional expression was inhibited and his friendships were largely restricted to younger boys.

Injections of a pregnancy urine pituitary extract produced changes usually seen at puberty in a normal boy. The endocrine treatment in

combination with psychoanalysis, induced active heterosexual interests, increased his confidence and his freedom of expression, although he had some difficulty in discarding his long-established defense mechanisms.

On his thirty-first birthday he had sexual intercourse for the first time. He finally married and made a normal adjustment.

Artificial menopause in women induced by surgical removal of the ovaries resembles natural menopause except that it is usually more severe. The sudden loss of ovaries upsets the whole endocrine balance and has far-reaching effects throughout the organism. Although orgasm capacity may be retained (140, 394), neither the unstable glandular condition nor the correlated emotional insecurity is conducive to normal sex functioning, and the usual picture shows a gradual loss of sex desire and the pleasurable sensations associated with coitus. Fortunately, despite greater resistance to treatment than in cases of normal menopause, the physical discomforts have been found to yield to replacement therapy (469, 533, 544, 651).

Subjective Attitudes.—As in the case of the natural climacteric, the patient's attitude toward his symptoms is more important than the symptoms themselves. The psychic trauma incident to the physical trauma may contribute more to the consequent impotence than the loss of the gonads. In other words, castration not only disturbs the individual biologically but, by lowering his self-confidence, it superimposes a psychological shock that may have even more serious consequences for his sexual adjustment. The fact that so many male castrates enjoy a satisfactory sex life without testes indicates that the sex glands are not altogether indispensable (128, 607). It is probable that some other endocrine glands such as the adrenals take over the androgenic functions under pituitary direction, after premature gonad removal (108, 506). However that may be, the important thing from the standpoint of social adjustment is that the effect of the castration experience will depend upon the patient's pre-operative personality. On his personality also depends the

efficacy of the treatment. The function of therapy must be to restore not merely the hormonal balance but the individual's self-esteem. In achieving this aim the element of suggestion, which we have found an invariable accompaniment of endocrine therapy, is of the greatest value. In fact, psychotherapy alone has aided sexual expression in castrates as it has in climacteric cases (164). Perhaps the best therapeutic agent one could hope for would be the replacement of superstitions prevailing in the public mind by the knowledge that castration does not mean the end of normal living.

In the course of our study of different animal forms, we found that in general the higher we ascended the phylogenetic scale the less exact was the correlation between behavior and biological state. At the human level, sexuality is so complexly motivated and so dominated by factors of attitude and social expectation that it is difficult to filter out the psychological overtones that have blended with and enriched the biological fundamental. In tracing the development of sex from childhood to maturity, we found that satisfaction was increasingly dependent on personal and social factors. Similarly in sexual decline, gonadal depletion, whether due to senescent changes or surgical removal, need not deprive the individual of sexual satisfactions and attendant feelings of social adequacy. He can adopt a constructive attitude toward his condition with little difficulty provided that the society of which he is a member is properly informed and psychiatrically oriented.

CHAPTER XV

DIFFERENCES BETWEEN THE SEXES

Before we can properly evaluate sex roles and indicate lines along which improvement in the relationship between the sexes should be attempted, we should become familiar with those sex differences which have a direct bearing on the problem.¹

BIOLOGICAL FUNCTIONS

Male Superiority in Size and Strength.—According to Linton, the double standard is probably as old as the primate order. Perhaps the statement should be extended to include the entire phylum Chordata. Our comparative survey of the vertebrates revealed, with few exceptions, a male superiority in size and strength. Behaviorally this appeared very consistently as male dominance until we reached the primates. Here dominance did not bear a simple one-to-one relationship to physical prowess because less tangible social-personality factors complicated the picture. In species like the baboon, dominance was of a brutal, physical sort, in others, such as the chimpanzee, it depended not on physical superiority alone but rather on "total personality." The superior strength seemed to result in the male's assuming greater responsibility for females and young.

Among humans, superior size and strength give men an advantage over the "weaker sex" in coping with primitive conditions and have had an important effect on the development of

¹ A more complete account of sex differences, including such physiological conditions as basal metabolic rate, hemoglobin, resistance to infection, and others, that may indirectly affect behavior, may be found in A. Scheinfeld's *Women and Men*, Harcourt, Brace and Company, New York, 1944, pp. xx + 453, which appeared after the present volume had gone to press.

social institutions. This physical advantage is the origin of the conventional lead enjoyed by men in most societies. Even in so-called "matriarchies," the ultimate control is vested in the males. Although a husband may have no authority over his own wife and children, he will control some other woman, usually his sister and her children. The primary importance of hunting and defense for survival under primitive conditions increases the social importance of the men who perform these necessary tasks. When, however, any group becomes mainly dependent on an occupation engaged in exclusively by women, their social status is correspondingly raised. A situation of this sort was observed by Mead among the Tchambuli (409). Although legal dominance rested with the men, the basic work necessary for subsistence was in the hands of the women. In this society, it is the women who fish and weave the mosquito nets which are traded for other food and supplies. These functions win for them a high measure of respect and prestige although their power is *de facto* rather than *de jure*.

As the struggle for existence becomes less of a hand-to-hand affair, sex differences in physical strength assume increasingly less importance, and the ground is prepared for equality of status between the sexes. The correlated dominance, however, in competitive societies such as ours still gives men a very real advantage.

Female Sex Functions.—An unfailing cultural argument for the differentiation of roles according to sex is based on the biological difference in reproductive functions. Hardly a society exists which does not point up the assumed handicaps of women. The menstrual phenomena are surrounded with fear and superstition the world over. During this period a woman's freedom is variously curtailed. She may not cook, she may not associate with men, or she may have to remain in complete isolation in a "menstrual hut." Even our own enlightened society is not free from similar taboos. Menstruation is

frequently referred to as "the curse," during which the woman may not indulge in normal physical activities. The paralyzing suggestions contained in such social stereotypes seriously affect women's own attitudes toward this function, and it becomes a handicap indeed—a handicap induced by culture rather than biology. As we have seen, it is only in the exceptional cases with pathological involvements that menstruation actually interferes with the usual range of activities. Moreover, our survey of scientific studies of menstrual effects failed to reveal evidence of cyclic impairment in the performance of psychological tasks.

As we have already pointed out, the disturbances often associated with the close of woman's reproductive life also spring largely from tradition. Menopausal depression is often a reaction to the prevailing notion that social as well as biological usefulness is over. We have indicated the importance of psychotherapy in the cure of such conditions. We might easily take the further step of prevention by instilling the healthy attitudes toward this natural function from the beginning through appropriate education.

Similar arguments apply to women's most important biological function, childbearing. We have suggested that women in our society are encouraged to assume a delicate-condition instead of a normal-condition attitude toward themselves. We have noted that this means a discontinuation or marked change in their workaday lives, with frequently resulting "vacation neuroses," coupled with a hypochondriacal absorption in physical discomforts and symptoms. After childbirth, society further excuses and even discourages women from active citizenship by an appeal to sentimentality although there need be no conflict between wholly adequate cherishing of the child and the continued participation of normal women in the life of the group.

Cherishing activities, because of their association with suckling, are commonly ascribed to women. In spite of this biological

nucleus, maternal behavior is very largely learned. Our study of lower mammals revealed that even at the rodent level, mechanisms controlling maternal behavior might be brought into action either by internal or external stimuli. The reader will recall that in the rat maternal behavior was sometimes manifested in normal males and virgin females when caged with young. The mouse showed even greater independence of endocrine factors, maternal behavior appearing in animals from which both gonads and pituitaries had been removed. Among primates, individual differences in maternal behavior were even more conspicuous and experience played a greater part. The role of the father varied from species to species. The father gibbon, for example, shared with the mother in the care of the young and was known on occasion to eat the placenta.

Our information concerning human mothers has been importantly extended by the recent psychosomatic studies of David Levy (363). On the basis of interviews concerning interests and past behavior in relation to children, he classified the mothers of his behavior-problem cases according to degree of maternalism. He then correlated these ratings with measurements of certain physical characteristics, such as duration of menstrual phase, onset of menses, size of nipple, body weight and height. The only significant coefficient was between degree of maternal interest and duration of menstrual flow, where $r = +0.579 \pm .053$. The interpretation immediately suggested is that menstrual flow and maternalism represent two levels of functioning through which endocrine factors may be expressed. We should not overlook the possibility, however, that the covariants may merely indicate individual differences in emphasizing or minimizing reproductive functions. In other words, the common factor may be either glandular balance or social attitude. In any case the *individual* variation revealed by the correlation should certainly be utilized in social planning.

We should remember that the differences established concern

only the female sex. Whether similar correlations between parental inclination and such physiological measures as blood hormone assays would reveal a range of individual differences in men comparable with those reported for women remains to be discovered. From the present data nothing can be inferred with respect to intersex comparisons. We know that hormonal sex differences depend on the *balance* between androgens and estrogens rather than on the presence or absence of specific sex hormones. Moreover, we have just noted that among lower mammals normal males often spontaneously manifest maternal behavior. It can also be induced either by endocrine injections or by environmental contact with the young. As we have noted, even the specifically *female* process of lactation has been experimentally produced by androgens. In view of these considerations we are not justified in regarding sex differences in maternalism as an established datum.

The only conclusion warranted by the present evidence is that under normal developmental conditions parturient females will suckle their young for a limited time. There are no data to show that this physiological function in itself either predisposes them toward greater interest in the young than males or makes them more solicitous afterward. Lower mammals apparently lose all interest in their own offspring by the end of the lactation period and even before this have been known to kill them. In higher organisms whose capacity for learning is further advanced, differences between the sexes may appear as a result of conditioning. To determine whether the intimate contact between mother and child leads to a stronger conditioning than could be induced in the case of the father would be a research program worthy of the Yerkes Laboratories of Primate Biology. Among humans, the further problem arises concerning the role of differential social pressures in producing maternal behavior. Although patriarchal Western culture plays down parentalism in men, thereby giving the impression of sex differ-

ences in attitude toward children, we have found evidence of male maternalism in cultures that support such behavior. This leaves the way open for greater flexibility in sex roles than has been generally realized.

PSYCHOLOGICAL PERFORMANCE

Intellectual Abilities.—The similarity between the sexes in brain size provides an anatomical basis for similarity in intellectual functions (246). That this is indeed the case is borne out by the results of intelligence testing which indicate that if any sex differences can be established they will be small (388). In comparison with individual differences among members of the same sex they are negligible (240). The question remains, however, whether the abilities of women are of the same *kind* as those of men. From a review of the extensive literature that has been ably summarized by Miles (421), Anastasi (20), and Allen (13), certain sex differences in type of ability appear which bear further analysis. The muscular superiority which we have noted in the male may partly account for his superiority in various motor skills. This becomes evident as early as the preschool period in his superior performance on such tests as peg boards, mazes, and picture puzzles (649). Among a large group of nursery-school children the boys displayed greater activity and aggressiveness while the girls tended to avoid risks, were timid and more dependent on adult approval (280). In line with this, boys and men seem to prefer activities involving greater competition and vigor than girls. Even their behavior problems are of a more aggressive and overt type (649). Although these abilities and interests rest on a basic muscular superiority, society often entrenches this masculine lead by supplying the boy with mechanical materials and offering him special training, as, for example, in shop. The fact that women show even greater improvement in such activities than men suggests that such abilities are not exclusively hereditary gifts. Under stress of circumstance

women have proved equal to men even in this field. The Second World War produced a situation in Western culture in which much of the mechanical work ordinarily done by men and previously assumed to be too heavy for women, necessarily devolved upon them. In the Soviet Union where sex distinctions have been minimized, women have not only been known to fight side by side with men on the field of battle but are reputed to have performed the singularly heroic task of carrying the wounded *on their backs* from the battlefield. Thus training is capable of outweighing natural sex differences in muscular strength, although the desirability of sex equation along these lines under normal conditions may be open to question.

Other areas of male superiority concern numerical and spatial relations. This sex difference is less marked, however, probably because the difference in training is less marked, although boys are expected to have greater interest and success along these lines.

These specific male advantages are offset by female superiority in other directions. Girls have been found to excel consistently in verbal ability. As babies they begin talking a month earlier than boys and pick up words more rapidly. By preschool age they are more advanced in language development and maintain their lead throughout school and college years. They have been found to do better on word association tests of various sorts, and on various other tests heavily weighted on the verbal side, such as naming opposites, color naming, sentence and story completion. The sex difference was clearly brought out in one study based on a mixed group of college students: on the verbal part of a scholastic aptitude test a large and reliable sex difference was obtained in favor of the women, which was reversed on the numerical part of the same test with the same subjects (20). In another study comparing large groups of men and women Negro college freshmen, the same sex differences in verbal and numerical abilities were revealed, although there was no difference in gross score (124). Added support for these trends may

be found in a marked sex difference in favor of women in ability to write English found among over 6000 candidates on a college entrance examination (574). The basis of the female flair for words is not clear from the evidence. It may be that the girl and woman turn to symbolic rather than motor expression as more in keeping with their muscular inferiority and their domesticating environment. It would be instructive to see whether women show the same verbal superiority in cultural groups which make equal or greater physical demands upon them.

Feminine prestige rests not only on verbal accomplishment but on artistic merit as well. Girls and women are reputedly more sensitive to color and music. Their greater responsiveness to color may in part be based on a native superiority, since color blindness sex-linked is assumed to be and appears in a much higher proportion of males than females (141). It may, however, be largely the product of greater experience with colors through such domestic activities as dressmaking and interior decoration. As for musical ability, a crucial experiment was recently performed on 1000 college students of both sexes to determine to what extent the long-standing claim of female superiority was justified (232). Actually the women did come out better on the tests. The significant point, however, was that the differences disappeared when only *untrained* members of both sexes were included. Moreover, as shown in Table 14 (232, p. 28), comparisons of students from high and low socio-economic levels within each sex revealed corresponding differ-

TABLE 14.—FOUR-CORNED COMPARISON BY SEX AND ECONOMIC LEVEL

Economic level	Female		Male	
	Per cent trained	Average score	Per cent trained	Average score
High.....	84	212	55	202
Low.....	65	201	22	195

ences in both musical training and talent. Thus the same differences that exist *between* the sexes because of social pressure are found *within* each sex according to economic status. This seems to be convincing proof of the superior role of nurture over nature in producing sex differences in musical talent.

In general we may assume that the greater freedom and independence granted the male in our society induce a more objective and impersonal curiosity about the world which finds expression in geography, history, general science, and mathematics. The more sheltered life of girls, on the other hand, leads to preoccupation with domestic affairs. The greater dependence on authority leads to greater conscientiousness in assigned tasks and may also account for a better showing in school grades.

Interests.—The differing patterns of interest displayed by the opposite sexes show an obvious relationship to the abilities just described. From an early age, boys are more interested in manipulating their environment, but social channeling may be largely responsible. As we have seen, sex typing begins at birth and one effective means of impressing it upon the young is through the medium of sex-appropriate games and toys. We have seen how the early play activities of children reflect the social sex roles expected of them.

As the individuals mature and the contrast in sex roles becomes sharper, interests diverge more and more. In an attempt to study the course of change in sex differences, Symonds had groups of high-school, college, and graduate students rank 15 areas of human interests (605). These included reading, writing, movies, radio programs, games, topics of conversation, and vocational selection. The college students showed the greatest divergence of interests between the sexes. The direction of the differences followed the conventionally accepted sex roles of Western culture; men were more interested in physical health, safety, money, and sex; women, on the other hand were more

receptive and personal, attaching greater importance to attractiveness, personality, home, family, and other people. The author found that in later years, as sex became less of a concern, the difference in interests between men and women decreased, approaching the vanishing point at senescence.

In confirmation of these tendencies we may cite studies of sex differences in conversational interests. Eavesdropping psychologists in the New York City theater district, in London, in a Middle Western American town, as well as in college, reported predominant male concern over money, sports, and business, while clothes, social affairs, and personalities were the leading topics of feminine interest (421, 583). The same dichotomy appears again in the peaks attained by men in the political, economic, and theoretical fields on a test of values, in contrast to the women's high rating for religious, aesthetic, and social interests. This difference appears in Table 15 (125, p. 260).

TABLE 15.—SCORES ON ALLPORT AND VERNON'S TEST OF VALUES

	Theo- retical	Eco- nomic	Aes- thetic	Social	Political	Re- ligious
1163 males.....	30.83	32.02	27.04	29.74	32.08	27.96
1592 females.....	27.69	27.04	33.03	31.65	27.87	33.31

Finally, the difference in sex roles becomes expressed in vocational fields. Where men and women are engaged in a given occupation, the question arises as to whether or not sex differences in interest patterns may not create different overtones. To test this possibility Seder (531, 532) compared the scores of women physicians and insurance saleswomen on the men's and women's forms of the Strong test. Both groups obtained the same ratings on the two forms. Thus patterns of interest seem to vary with occupation, not with sex as such. In other words, a physician does not have different interests according to whether

he is male or female, but his interests may differ, regardless of sex, from those of a person who sells insurance.

A comparison of the sexes with regard to employment shows a greater number of men engaged in outdoor work, public service, transportation, commerce, and trade, while women's work is apt to be less vigorous (421). Special interest attaches to the cases where changing conditions have taken women out of the home. Instead of a redistribution of activities between the sexes, women have tended to follow their old occupations out of the home into the wider world. Meanwhile, men in our culture choose the physically more strenuous and mentally more stimulating types of work. That this represents a sex difference in culturally induced motivation rather than physical energy is suggested by the rapid occupational equation of the sexes which occurs when external conditions demand it. Such a situation has been in effect in the U.S.S.R. since the revolution and has been taking place in western Europe and America since the war began.

Emotional Responsiveness.—The sexes have been compared not only for abilities and interests but also with respect to emotional responsiveness. Despite lack of perfect agreement among studies of this sort, the weight of the evidence lies in the direction of greater emotional instability coupled with greater absorption in subjective interests, for women (20, 249, 316, 528, 660). Even before puberty girls show a greater number of neurotic symptoms. After age eleven, their instability seems to increase while that of boys of corresponding ages decreases. This is a time when differential pressures on the two sexes become acute. Girls find themselves more and more frequently either in conflict situations in which their role is not clearly defined or else facing severe frustrations that their brothers escape. In addition, they are under the constant anxiety of having to attract a husband or risk their social prestige as well as their economic security. By the time college age is reached, it is no

wonder that neuroticism and introversion are revealed in their test scores. College men, on the other hand, show more self-sufficiency and confidence and are less subjectively sensitive and reactive emotionally. Custom in our society with its repression for women and expression for men has reinforced the biological male dominance.

Certain sex differences in personality have been revealed by the Rorschach test. Little girls begin earlier to adjust their reactions to emotional situations (341). At adolescence an introversive tendency appears in both sexes but is more marked in girls (290). Later, differences between the sexes seem to become equalized (604).

Social Attitudes.—In no area of sex differences does culture play a more conspicuous role than in attitudes toward moral and social issues. As one might anticipate from a knowledge of the more sheltered conditions under which they live, women tend to be more conservative (558). This is especially true where religion is concerned (126, 317, 321, 376, 658). What this means concretely in specific situations, however, will depend on the current scene. To be a pacifist in peacetime is a sign of liberalism; in wartime, of reactionism or worse. Attitudes are relative to the time, place, and specific conditions under which they are expressed and must be evaluated against such backgrounds if they are to be meaningfully interpreted. The greater susceptibility of women to religious and superstitious beliefs is a case in point. In one study including 548 families, the sex differences varied with age and occupational level, being most pronounced for the youngest and poorest. The marked sex differences at the lowest age level are best interpreted as owing to the fact that boys break away from parental attitudes at earlier ages than the more cloistered girls. Moreover, since cultural differentiation of the sexes tends to be more pronounced at the lowest economic levels, greater sex differences would be expected in such groups (439).

With respect to the evaluation of moral attitudes, sex differences are less marked. In studies in which the seriousness of transgressions was ranked by men and women only slight sex differences appeared. Very high correlations have been found between rankings of offenses by high-school boys and girls (561) as well as by college men and women (105). In a very recent experiment in which the moral attitudes of university men and women were compared, anonymous judgments were called for concerning a variety of acts. These included cheating, rape, sex relations outside of marriage, lying to parents, and drinking. The results showed striking similarity between the sexes on all issues except the sexual which the women rated as more serious than did the men (559). Confirmatory evidence has been reported on college students from different geographical regions (160).

Mental Masculinity-femininity.—The most ambitious attempt to quantify mental sex differences in our culture is the attitude-interest analysis, or M-F test of Terman and Miles (611). The test, based on actual differences between large groups of men and women, includes such exercises as word association, information, emotional and ethical responses to imagined situations, and expressions of interest in a wide variety of topics.

The test serves as a kind of scale to measure the degree to which a given individual fits the typical mold of his sex in our culture. The authors summarize the results obtained from applying the test to 6000 people representing a cross section of American life (611, pp. 447-448):

From whatever angle we have examined them, the males included in the standardizing groups evinced a distinctive interest in exploit and adventure, in outdoor and physically strenuous occupations, in machinery and tools, in science, physical phenomena, and inventions, and, from rather occasional evidence, in business and commerce.

On the other hand, the females of our groups have evinced a distinctive interest in domestic affairs and in aesthetic objects and occupations; they have distinctly preferred more sedentary and indoor occupations, and

occupations more directly ministrative, particularly to the young, the helpless, the distressed.

The males . . . manifest greater self-assertion and aggressiveness; express more hardness and fearlessness, and more roughness of manners, language, and sentiments.

The females express themselves as more compassionate and sympathetic, more timid, more fastidious and aesthetically sensitive, more emotional in

TABLE 16.—SCORES OF MEN AND WOMEN IN THE GENERAL POPULATION ON THE TERMAN-MILES MASCULINITY-FEMININITY SCALE

Sex Score	Male	Female
+201 to +220		
+181 to +200	6	
+161 to +180	4	
+141 to +160	14	
+121 to +140	36	
+101 to +120	42	
+ 81 to +100	72	
+ 61 to + 80	95	
+ 41 to + 60	101	5
+ 21 to + 40	78	18
+ 1 to + 20	60	30
0 to - 19	51	50
- 20 to - 39	32	76
- 40 to - 59	6	104
- 60 to - 79	6	103
- 80 to - 99	1	117
- 100 to - 119		85
- 120 to - 139		58
- 140 to - 159		32
- 160 to - 179		12
- 180 to - 199		5
- 200 to - 219		1
<i>N</i>		696
Mean	+52.58	-70.65
S.D. dist.	49.93	47.51
S.D. Mean	2.03	1.80

general, severe moralists, yet admit in themselves more weaknesses in emotional control and (less noticeably) in physique.

These clear-cut qualitative distinctions between the sexes reflect equally clear-cut quantitative differences, as shown in Table 16 (611, p. 72). The distribution of M-F scores is clearly bimodal, with a narrow overlapping area between. The authors found one male in 100 to score as feminine as the average female of the same age, and one female in 100 to score as masculine as the average male of the same age. Within each sex group, there was a wide range of individual differences. Servants, students, and teachers were among the more feminine women, while physicians, college athletes, and members of *Who's Who* were least feminine. Among men, athletes, engineers, and the gifted represented the more masculine extreme, while musicians, clergymen, and artists were least masculine. Figure 23 brings out some of these relationships. It is worthy of note that superior culture and achievement seem to bring the sexes together, suggesting that when inequalities of social pressure are ruled out and members of both sexes enjoy the same kind of training, personality differences between them disappear. The hereditarians may argue that superior education attracts those already showing characteristics of the opposite sex, but the burden of proof clearly rests upon them. The very fact that overlapping is found between groups that are so different in structure supports a cultural interpretation. This interpretation gains further plausibility from the finding that physical measures showed little relation to M-F scores in either sex.

The greatest overlapping in test scores has been reported for various groups of sexual invert (49, 287, 611). As we have already pointed out, even in such cases, social rather than biological factors are primarily responsible for the inverted personality pattern.

This survey of sex differences in our society has revealed a male superiority in strength correlated with a tendency to domi-

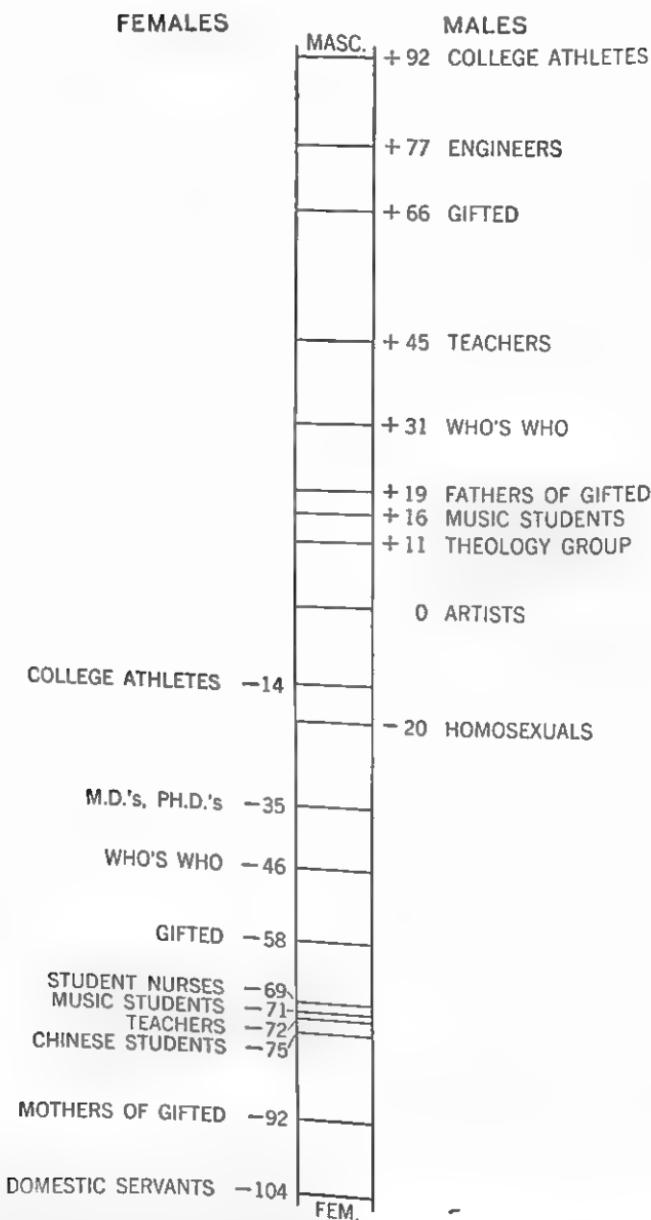


FIG. 23.—Masculinity-femininity scores of various occupational groups.
(Courtesy of John P. Seward Jr., after L. M. Terman, and C. C. Miles, *Sex and Personality*, New York, McGraw-Hill, 1936.)

nate in social situations. Although these differences may have their origin in biology, society may play them up or down. Differences at the psychological level, with the possible exception of female verbal superiority, seem to have little if any biological basis but are largely the products of our culture and reflect the roles assigned the two sexes. The scientific evidence available at the present writing fails to indicate differences attributable to sex membership as such that would justify casting men and women in different social roles.

CHAPTER XVI

SEX IN POSTWAR SOCIETY

ACCELERATION OF EQUALITY IN STATUS

We have already noted the increase in status which women have enjoyed in earlier times during prolonged periods of warfare when they have had to shoulder unusual responsibilities. In the present era the same trend is apparent. The First World War extended the scope of women's work beyond the narrow range of teaching within which it had hitherto been confined (43). The suffrage Amendment indicated that their improved status was not completely counteracted by their return home after the Armistice. During the Second World War, the trend has been toward economic equality between the sexes. Women's activities have been extended to include practically every area of social living. In war industries they have taken the place of men as grinders, riveters, welders, machinists, and in many unaccustomed jobs. As guards they have even been trained in jujitsu to be ready to cope with saboteurs if necessary. They have performed on an equal footing with men as workers although they have also had to carry their domestic burdens. As one observer put it, "Conversion from aprons to overalls is slow because most women must wear both at the same time" (667). Not only have women found their place in industry, but for the first time they have entered the services where their work is often identical with that of men (382). The service woman, moreover, shares with the serviceman postwar job priorities. Industrial relocations may conceivably run across the sex line, with the novel result of a service *woman* replacing a civilian *man*. At least there is good reason to believe that economic sex equality

may follow the Second World War just as political sex equality followed the First World War (632). Legal equalities alone will not satisfy the needs of the woman who has participated in the conduct of the war. She also craves self-expression as a wife and mother. In fact the public nature of group living has induced in the service woman an overvaluation of the private and the intimate. But while she longs for a husband and children just as the traditional woman always has, her needs are broader and must be met if she is to function constructively in postwar society. Having once felt herself part of a great adventure, she will not fit comfortably into the relative isolation of the conventional domestic role. She will still need to feel herself a part of the life of the group.

The emerging dual role of woman as *worker-mother* will demand extensive readjustments in the social roles of both men and women.

INTENSIFICATION OF CULTURAL CONFLICT

Middletown revealed the ambiguous position of our society with respect to sex roles. We noted a more democratic redefinition slowly evolving within an inherited patriarchal framework. The wartime acceleration of the trend toward equality can hardly fail to intensify conflict with the lagging mores. Evidence of cultural conflict was found in the writer's recent study of the attitudes of college women toward their role in postwar society (534). The greater equality and independence endorsed for the single woman contrasted sharply with a reactionary adherence to the tradition of socioeconomic parasitism for the married woman. A sudden change in role of this kind is fraught with risk of emotional conflict for the individual. Having enjoyed the same educational opportunities and having been motivated by the same vocational goals, the girl who marries finds herself confronted with a reversal of values. She is expected to turn her back on the world of achievement and to concentrate

her energies on domestic activities for which she has had little or no previous training and in which she may or may not have any interest. The analysis of the data of the college students revealed that unless the older pattern was reinforced by a patriarchal home background, the girl was thrown into confusion. Her conflict was often expressed by a desire to reject the feminine *social* role, as she faces the postwar world. At the same time she was as eager to embrace the feminine *biological* role as those wishing to maintain women's *status quo*. Among this group of healthy young women there was no evidence of "penis envy." They did not wish to exchange places with men. They wanted to fulfill themselves as women and at the same times to express their abilities in the world of achievement. Thus the emotional conflict in which woman finds herself is of social rather than biological origin. It is a symptom of the confusion that characterizes the transition from an autocratic to a democratic pattern of sex roles.

Repercussions of this cultural transition carry as much risk of emotional conflict for men as for woman. As we have noted, the man is still rigidly held to the old patriarchal ideal of provider. Realization of this goal, however, is made more difficult in contemporary society by the competition he experiences with women as well as men. He is thus faced with the necessity of supporting the woman he marries while competing with the unmarried woman. Under these circumstances he becomes increasingly preoccupied with success and can find little time or energy for the cultivation of his family. Having submerged the role of father under that of worker, he tends to glorify the home and to project upon woman his own frustrated desires for the softer values of life (377).

A SOLUTION

Our study of the scientific evidence suggests certain emphases that may lead to a redefinition of the roles of men and women

in postwar society. Under primitive conditions whether in city slums or darkest Africa, social sex roles are necessarily bound by physical sex differences. The superior musculature of the male has undeniable survival value for the family unit in a literal struggle for existence. On a subsistence plane the natural division of labor is for the man to fight and hunt and for the woman to tend the home fires and suckle the young. The male social dominance originally correlated with superiority in physical strength has persisted long after the sex differences in strength have become irrelevant. It continues to function whenever the social struggle makes it advantageous to have a group subordinated (411). This mechanism accounts for the authoritarian family structure of bourgeois Western society where the economic system fails to provide the opportunities for everyone to contribute to the group. By confusing women's biological functions with their social role and maintaining male monopoly in the world of achievement, it has been possible to keep half the population from competing for the insufficient jobs available. Under fascism, these trends become exaggerated, with the aid of propaganda directed toward glorifying the reproductive tract at the expense of the cerebral cortex. Within this autocratic social climate "masculine" is given the destructive connotation of domination and aggression, while "feminine" is identified with the negative values of passive subservience and docility.

Victory for the democratic way of living means a democratic reformulation of sex roles (536). Although fighting prowess may be defensible in a militaristic ideology, it has no place around the peace table. The masculine drive to power can be sublimated in constructive *achievement*. This masculine derivative, however, need not be specifically ascribed to the male sex, but women could just as well be encouraged to contribute their gifts to building the new society. Since individual differences in ability outweigh sex differences, men and women should be given equal

opportunities to achieve as individuals without regard to sex. Even so reactionary a social planner as Plato recognized the importance of women in the ideal state. In his famous *Republic* he writes (483, Bk. V, p. 162).

Then we shall have to select duly qualified women also, to share in the life and official labours of the duly qualified men; since we find that they are competent to the work and of kindred nature with the men.

The application of this ideology to our society would ensure the full utilization of available talent and could not fail to result in a richer society.

Just as women may learn from men how to achieve, so men may learn from women how to cherish. The deep significance of the life-giving functions, originally associated with the process of suckling, have so far not extended beyond the nursery. The social possibilities that lie in these functions have been ignored by a war-minded patriarchal tradition which devalued them as "feminine." In a democratic economy of peace, however, they acquire supreme importance. From the mother, men as well as women may learn the value of giving and loving. The acceptance of these feminine values should not only help in the larger social planning but they should also make for more warmth within the intimate circle of the home. They should replace the unlovely domestic despot with a mother and the figurehead patriarch with a father. After the security-shattering experiences of war, our children are all the more in need of stable, well-adjusted, complete homes in which both mother and father share in the companionship of their children.

This sharing between men and women inside as well as outside the home should improve their private relationships. In a situation where personal satisfactions outweigh frustrations, tension gives way to relaxation that makes all relationships run more smoothly. Far from "unsexing" either women or men, release from the sources of threat and anxiety concerning one

another could have only a constructive effect on sexual relations which would be more highly valued as the means of expressing their greater appreciation.

The social pattern we have suggested need not be discounted as a starry-eyed fantasy of utopia. To an encouragingly large extent many of the important features have already been put into effect in socially progressive Sweden (435). To implement the program demands extensive social reorganization. In the first place, there would have to be economic reforms that would make it not only possible but necessary for every citizen, male or female, to contribute to production as well as to consumption. It is only in this way that men can be relieved of their burden of being the sole support of the family. Moreover, it is only in this way that women will have sufficient motivation to accept their responsibilities to the larger social group and to contribute to it wholeheartedly.

Another important change concerns relieving women of their excessive domestic burden. Cooperative housing, with community kitchens, laundries, and cleaning services would take care of routine household needs. Day nurseries managed by people especially trained for such work would provide the necessary group experiences for the children while their parents were at work. Freed from the relentless routine of *housekeeping*, women would be able to devote themselves, along with the men, to the affectional and enduring values of *homemaking*.

Finally, changes that fundamentally affect social role can become an integral part of group mores only after generations have grown up with them. To accomplish this requires cooperation of educational institutions. From nursery school on, children must be educated to assume their social sex roles. The principal deviations from the traditional would center around the elevation of feminine values. Boys as well as girls would be trained for parenthood, and contrary to current standards, *doll play* would become a necessary part of their repertory. On

the other hand, more training along mathematical and mechanical lines would be important for girls who are to share with boys in the world's work.

Throughout, the emphasis on increased understanding between the sexes would demand coeducation so that boys and girls would have a continuous experience of working and playing together. Hand in hand with general education for social adjustment between the sexes would go specific education for sexual companionship as a positive value. In such a program, sex would receive the respect that it deserves in the curriculum. The psychosexual growth of children would be as carefully followed as any other phase of their development.

The end result would be a society of men and women deeply appreciative of one another and cooperating in the tremendous adventure of reconstructing Western culture.

BIBLIOGRAPHY

1. ABEL, T. M.: Negro-white interpersonal relationships among institutionalized subnormal girls, *Amer. J. Ment. Def.*, 1942, **46**, 325-339.
2. ———: Negro-white interpersonal relationships in a limited environment, *Trans. N. Y. Acad. Sci.*, 1943, **5**, 97-105.
3. ALLEE, W. C.: Analytical studies of group behavior in birds, *Wilson Bull.*, 1936, **48**, 145-151.
4. ———: Group organization among vertebrates, *Science*, 1942, **95**, 289-293.
5. ———: Social dominance and subordination among vertebrates. In CATTELL, J. (Ed.), *Biological Symposia*, 1942, **8**, 139-162. REDFIELD, R. (Ed.) *Levels of Integration in Biological and Social Systems*.
6. ———. *The Social Life of Animals*, New York: Norton, 1938, pp. 293.
7. ———, and COLLIAS, N.: Effects of injections of epinephrine on social order in small flocks of hens, *Anat. Rec.*, 1938, **72**, 119. Abstract.
8. ——— and ———: The influence of estradiol on the social organization of flocks of hens, *Endocrinology*, 1940, **27**, 87-94.
9. ——— and ———: The influence of injected male hormone on the social hierarchy in small flocks of hens, *Anat. Rec.*, 1938, **72**, 60. Abstract.
10. ———, ———, and BEEMAN, E.: The effect of thyroxin on the social order in flocks of hens, *Endocrinology*, 1940, **27**, 827-835.
11. ———, ———, and LUTHERMAN, C. Z.: Modification of the social order in flocks of hens by the injection of testosterone propionate, *Physiol. Zoöl.*, 1939, **12**, 412-440.
12. ALLEN, A. A.: Sex rhythm in the ruffed grouse (*Bonasa umbellus linn.*) and other birds, *Auk*, 1934, **51**, 180-199.
13. ALLEN, C. N.: Recent research on sex differences, *Psychol. Bull.*, 1935, **32**, 343-354.
14. ALLEN, E., HISAW, F. L., and GARDNER, W. U.: The endocrine functions of the ovaries. In ALLEN, E., DANFORTH, C. H. and DOISY, E. A.: *Sex and Internal Secretions*, Baltimore: Williams & Wilkins, 2d ed., 1939, 452-629.
15. ALLEN, J.: The associative processes of the guinea pig. A study of the psychical development of an animal with a nervous system well medullated at birth, *J. Comp. Neurol.*, 1904, **14**, 293-359.
16. ALLEN, R. P., and MANGELS, F. P.: Studies of the nesting behavior of the black-crowned night heron, *Proc. Linnean Soc. N. Y.*, 1938, **50**, 51, 1-28.

17. ALLESCH, G. J. von: Geburt und erste Lebensmonate eines Shimpansen, *Die Naturwiss.*, 1921, **9**, 774-776.
18. ALPERT, A.: The latency period, *Amer. J. Orthopsychiat.*, 1941, **11**, 126-133.
19. ALTMANN, M., KNOWLES, E., and BULL, H. D.: A psychosomatic study of the sex cycle in women, *Psychosom. Med.*, 1941, **3**, 199-225.
20. ANASTASI, A.: *Differential Psychology*, New York: Macmillan, 1937, pp. XVII + 615.
21. ANDERSON, E. E.: Consistency of tests of copulation frequency in the male albino rat, *J. Comp. Psychol.*, 1936, **21**, 447-459.
22. ———: Sex differences in timidity in normal and gonadectomized rats, *J. Genet. Psychol.*, 1941, **59**, 139-153.
23. ———: The interrelationship of drives in the male albino rat. I. Inter-correlations of measures of drives, *J. Comp. Psychol.*, 1937, **24**, 73-118.
24. ———: The interrelationship of drives in the male albino rat. II. Inter-correlations between 47 measures of drives and of learning, *Comp. Psychol. Monogr.*, 1938, **14**, No. 72, pp. 119.
25. ———: The interrelationship of drives in the male albino rat. III. Inter-relations among measures of emotional, sexual, and exploratory behavior, *J. Genet. Psychol.*, 1938, **53**, 335-352.
26. ———: The sex hormones and emotional behavior. I. The effect of sexual receptivity upon timidity in the female rat, *J. Genet. Psychol.*, 1940, **56**, 149-158.
27. ———, and ANDERSON, S. F.: The sex hormones and emotional behavior. II. The influence of the female sex hormone upon timidity in normal and castrated female rats, *J. Genet. Psychol.*, 1940, **56**, 159-168.
28. ANONYMOUS: Recent aspects of the employment of women in Germany, *Int. Labour Rev.*, 1942, **45**, 286-296.
29. ANONYMOUS: The employment of women in Germany under the National-Socialist Régime, *Int. Labour Rev.*, 1941, **44**, 617-659.
30. AREY, L. B.: The degree of normal menstrual irregularity, *Amer. J. Obstet. Gynec.*, 1939, **37**, 12-29.
31. ARIEFF, A. J., and ROTHMAN, D. B.: Psychiatric inventory of one hundred cases of indecent exposure, *Arch. Neurol. Psychiat.*, Chicago, 1942, **47**, 495-496.
32. ARMSTRONG, E. A.: *Bird Display*, Cambridge: University Press, 1942, pp. XVI + 381.
33. AVERY, G. T.: Notes on reproduction in guinea pigs, *J. Comp. Psychol.*, 1925, **5**, 373-396.
34. BALDWIN, F. M., GOLDIN, H. S., and METFESSEL, M.: Effects of testosterone propionate on female roller canaries under complete song isolation, *Proc. Soc. Exp. Biol. N. Y.*, 1940, **44**, 373-375.
35. BALL, J.: A test for measuring sexual excitability in the female rat, *Comp. Psychol. Monogr.*, 1937, **14**, No. 1, pp. 37.
36. ———: Further evidence on hormonal basis of "heat" behavior, *Proc. Soc. Exp. Biol. N. Y.*, 1936, **35**, 416-418.

37. ———: Male and female behavior in prepubertally castrated male rats receiving estrogens, *J. Comp. Psychol.*, 1939, **28**, 273-283.
38. ———: Sex activity and the menstrual cycle in the monkey, *Psychol. Bull.*, 1933, **30**, 660-661. Abstract.
39. ———: Sex activity of castrated male rats increased by estrin administration, *J. Comp. Psychol.*, 1937, **24**, 135-144.
40. ———: Sexual responsiveness and temporally related physiological events during pregnancy in the rhesus monkey, *Anat. Rec.*, 1937, **67**, 507-512.
41. ———: Sexual responsiveness in female monkeys after castration and subsequent estrin administration, *Psychol. Bull.*, 1936, **33**, 811. Abstract.
42. ——— and HARTMAN, C. G.: Sexual excitability as related to the menstrual cycle in the monkey, *Amer. J. Obstet. Gynec.*, 1935, **29**, 117-119.
43. BANNING, M. C.: *Women for Defense*, New York: Duell, 1942, pp. XII + 243.
44. BARAHAL, H. S.: Constitutional factors in male homosexuals, *Psychiat. Quart.*, 1939, **13**, 391-400.
45. ———: Testosterone in psychotic male homosexuals, *Psychiat. Quart.*, 1940, **14**, 319-329.
46. BARASH, M.: Sex life of the workers of Moscow, *J. Soc. Hyg.*, 1926, **12**, 274-288.
47. BARER, A. J., and FOWLER, W. M.: The blood loss during normal menstruation, *Amer. J. Obstet. Gynec.*, 1936, **31**, 979-986.
48. BARNARD, A.: Patterns of masculine protest among the Buka, *Character & Pers.*, 1943, **11**, 302-311.
49. BARNETTE, W. L.: Study of an adult male homosexual and Terman Miles M-F scores, *Amer. J. Orthopsychiat.*, 1942, **12**, 346-352.
50. BARTON, D. S.: A study of temperature and electrical potentials in the menstrual cycle, *Yale J. Biol. Med.*, 1940, **12**, 503-524.
51. ———: Electric correlates of the menstrual cycle in women, *Yale J. Biol. Med.*, 1940, **12**, 335-344.
52. BATESON, G.: *Naven*, Cambridge: University Press, 1936, pp. XVII + 286.
53. BAUER, J.: Homosexuality as an endocrinological, psychological, and genetic problem, *J. Crim. Psychopath.*, 1940, **2**, 188-197.
54. BEACH, F. A.: Analysis of factors involved in the arousal, maintenance and manifestation of sexual excitement in male animals, *Psychosom. Med.*, 1942, **4**, 173-198.
55. ———: Analysis of the stimuli adequate to elicit mating behavior in the sexually inexperienced rat, *J. Comp. Psychol.*, 1942, **33**, 163-207.
56. ———: Central nervous mechanisms involved in the reproductive behavior of vertebrates, *Psychol. Bull.*, 1942, **39**, 200-226.
57. ———: Comparison of copulatory behavior of male rats raised in isolation, cohabitation, and segregation, *J. Genet. Psychol.*, 1942, **60**, 121-136.
58. ———: Copulatory behavior in prepuberally castrated male rats and its modification by estrogen administration, *Endocrinology*, 1942, **31**, 679-683.

59. ———: Copulatory behavior of male rats raised in isolation and subjected to partial decortication prior to the acquisition of sexual experience, *J. Comp. Psychol.*, 1941, **31**, 457-470. 1 plate.
60. ———: Effects of cortical lesions upon the copulatory behavior of male rats, *J. Comp. Psychol.*, 1940, **29**, 193-244.
61. ———: Effects of injury to the cerebral cortex upon sexually receptive behavior in the female rat, *Psychosom. Med.*, 1944, **6**, 40-55.
62. ———: Effects of injury to the cerebral cortex upon the display of masculine and feminine mating behavior by female rats, *J. Comp. Psychol.*, 1943, **36**, 169-199.
63. ———: Effects of testosterone propionate upon the copulatory behavior of sexually inexperienced male rats, *J. Comp. Psychol.*, 1942, **33**, 227-247.
64. ———: Execution of the complete masculine copulatory pattern by sexually receptive female rats, *J. Genet. Psychol.*, 1942, **60**, 137-142.
65. ———: Female mating behavior shown by male rats after administration of testosterone propionate, *Endocrinology*, 1941, **29**, 409-412.
66. ———: Importance of progesterone to induction of sexual receptivity in spayed female rats, *Proc. Soc. Exp. Biol. N. Y.*, 1942, **51**, 369-371.
67. ———: Instinct and intelligence, *Trans. N. Y. Acad. Sci.*, Ser. II, 1941, **4**, 32-36.
68. ———: Male and female mating behavior in pre-puberaly castrated female rats treated with androgens, *Endocrinology*, 1942, **31**, 673-678.
69. ———: Maternal behavior of the pouchless marsupial, *Marmosa cinerea*, *J. Mammal.*, 1939, **20**, 315-322.
70. ———: Sex reversals in the mating pattern of the rat, *J. Genet. Psychol.*, 1938, **53**, 329-334.
71. ———: The neural basis of innate behavior. I. Effects of cortical lesions upon the maternal behavior pattern in the rat, *J. Comp. Psychol.*, 1937, **24**, 393-434. 1 plate—Figs. 1-6.
72. ———: The neural basis of innate behavior. II. Relative effects of partial decortication in adulthood and infancy upon the maternal behavior of the primiparous rat, *J. Genet. Psychol.*, 1938, **53**, 109-148.
73. BEEBE, R. W.: The sex questions of undergraduate college students, Unpub. M. A. Thesis, Columbia University, 1936, pp. 60.
74. BELL, S. A.: A preliminary study of the love between the sexes, *Amer. J. Psychol.*, 1902, **13**, 325-354.
75. BENDER, L., and BLAU, A.: The reaction of children to sexual relations with adults, *Amer. J. Orthopsychiat.*, 1937, **7**, 500-518.
76. ——— and PASTER, S.: Homosexual trends in children, *Amer. J. Orthopsychiat.*, 1941, **11**, 730-744.
77. BENEDEK, T., and RUBENSTEIN, B. B.: The correlations between ovarian activity and psychodynamic processes. I. The ovulatory phase, *Psychosom. Med.*, 1939, **1**, 245-270.

78. —— and ——: The correlations between ovarian activity and psycho-dynamic processes. II. The menstrual phase, *Psychosom. Med.*, 1939, **1**, 461-485.
79. —— and ——: The sexual cycle in women, *Psychosom. Med. Monogr.*, 1942, **3**, Nos. 1 and 2, pp. VIII + 307.
80. BENEDICT, R.: *Patterns of Culture*, Boston: Houghton, 1934, pp. XIII + 291.
81. ——: Sex in primitive society, *Amer. J. Orthopsychiat.*, 1939, **9**, 570-574.
82. BENJAMIN, H.: Age and sex differences in the toy-preferences of young children, *J. Genet. Psychol.*, 1932, **41**, 417-429.
83. BENNETT, M. A.: The social hierarchy in ring doves, *Ecology*, 1939, **20**, 337-357.
84. ——: The social hierarchy in ring doves. II. The effect of treatment with testosterone propionate, *Ecology*, 1940, **21**, 148-165.
85. BERGLER, E.: Some recurrent misconceptions concerning impotence, *Psychoanal. Rev.*, 1940, **27**, 450-466.
86. BERNSTEIN, P., and FERESTEN, M.: Tubal contractions of 24 menopause women, *Endocrinology*, 1940, **26**, 946-952.
87. BESOLD, F.: Beiträge zum Problem der Frigidität. *Zbl. f. Psychother.*, 1940, **12**, 249-256.
88. BIEN, E.: Eine bemerkenswerte Statistik, *Zbl. f. Psychother.*, 1932, **5**, 641-645.
89. BILLINGS, E. G.: The occurrence of cyclic variations in motor activity, in relation to the menstrual cycle in the human female, *Johns Hopkins Hosp. Bull.*, 1934, **54**, 440-454. 5 figs.
90. BINGHAM, H. C.: Parental play of Chimpanzees, *J. Mammal.*, 1927, **8**, 77-89.
91. ——: Sex development in apes, *Comp. Psychol. Monogr.*, 1928, **5**, No. 23, pp. 166.
92. BISSONNETTE, T. H.: Photoperiodicity in birds, *Wilson Bull.*, 1937, **49**, 241-270.
93. BLACKWOOD, B.: *Both Sides of Buka Passage*, Oxford: Clarendon Press, 1935, pp. XXIII + 624.
94. BLAIR, W. R.: Notes on the birth of a chimpanzee, *Bull. N. Y. Zool. Soc.*, 1920, **23**, 105-111.
95. BLANDAU, R. J., BOLING, J. L., and YOUNG, W. C.: The length of heat in the albino rat as determined by the copulatory response, *Anat. Rec.*, 1941, **79**, 453-463.
96. BLÜHER, H.: *Die Rolle der Erotik in der männlichen Gesellschaft*, 2 vols. Jena, E. Diederichs, 1921.
97. BOGGS, M.: Family social work in relation to family life, *Family*, 1934, **15**, 146-152.
98. BOHANAN, E. H.: Effects of environmental factors on the length of the estrous cycle in the rat, *Amer. J. Hyg.*, Sect. A, 1939, **29**, 1-10.
99. BOLLES, M. M.: Sex education for the 10 year old, *Hygeia*, 1941, **19**, 440-442.

100. BOSS, W. R.: Hormonal determination of adult characters and sex behavior in herring gulls (*Larus argentatus*), *J. Exp. Zool.*, 1943, **94**, 181-209.
101. BOSSARD, J. H. S.: War and the family, *Amer. Social. Rev.*, 1941, **6**, 330-344.
102. BRADY, R. A.: *The Spirit and Structure of German Fascism*, New York: Macmillan, 1937, pp. XIX + 420.
- BRANDT, P. (see Licht, H., pseudonym).
103. BREIPOHL, W.: Untersuchungen über den Menstruationszyklus in der Menarchezeit, *Zbl. f. Gynäk.*, 1937, **61**, 1335-1342.
104. BRENMAN, M.: Urban lower-class Negro girls, *Psychiatry*, 1943, **6**, 307-324.
105. BROGAN, A. P.: A study in statistical ethics, *Int. J. Eth.*, 1923, **22**, 119-134.
106. BROMLEY, D. B., and BRITTON, F. H.: *Youth and Sex: A study of 1300 College Students*, New York: Harper, 1938, pp. XIII + 303.
107. BROOKS, C. M.: Relation of the hypothalamus to gonadotropic functions of the hypophysis. In *The Hypothalamus, Res. Publ. Ass. Nerv. Ment. Dis.*, 1940, **20**, 525-550.
108. BROSTER, L. R.: Feminism, *Brit. Med. J.*, 1941, Pt. I, 117-118.
109. BROWN, J. F.: *Psychology and the Social Order*, New York: McGraw-Hill, 1936, pp. XIV + 529.
110. ———: *The Psychodynamics of Abnormal Behavior*, New York: McGraw-Hill, 1940, 1st ed., pp. XVI + 484.
111. BRUSH, A. L.: Attitudes, emotional and physical symptoms commonly associated with menstruation in 100 women, *Amer. J. Orthopsychiat.*, 1938, **8**, 286-301.
112. BUGBEE, E. P., and SIMOND, A. E.: The increase of voluntary activity of ovariectomized albino rats caused by injections of ovarian follicular hormone, *Endocrinology*, 1926, **10**, 349-359.
113. BURGESS, E. W.: Comment on Opler: Women's social status and the forms of marriage, *Amer. J. Sociol.*, 1943, **49**, 147-148.
114. ———: Predicting adjustment in marriage, *J. Hered.*, 1939, **30**, 557-564.
115. ———, and COTTRELL, L. S. JR.: *Predicting Success or Failure in Marriage*, New York: Prentice-Hall, 1939, pp. XXIII + 472.
116. ——— and WALLIN, P.: Homogamy in personality characteristics, *J. Abnorm. Soc. Psychol.*, 1944, **39**, 475-481.
117. ——— and ———: Homogamy in social characteristics, *Amer. J. Sociol.*, 1943, **49**, 109-124.
118. ——— and ———: Predicting adjustment in marriage from adjustment in engagement, *Amer. J. Sociol.*, 1944, **49**, 324-330.
119. BURR, H. S., MUSSELMAN, L. K., BARTON, D. S., and KELLY, N. B.: Bioelectric correlates of human ovulation, *Yale J. Biol. Med.*, 1937, **10**, 155-160.
120. BUTTERFIELD, O. M.: *Love Problems of Adolescence*, New York: Emerson Books, 1939, pp. VIII + 212.
121. CAMERON, A. T.: *Recent Advances in Endocrinology*, Philadelphia: Blakiston, 1936, pp. IX + 458.

122. CAMPBELL, C. H.: Mental aspects of the menopause, *J. Oklahoma. Med. Ass.*, 1937, **30**, 12-14.
123. CAMPBELL, E. H.: The social-sex development of children, *Genet. Psychol. Monogr.*, 1939, **21**, No. 4, 461-552.
124. CANADY, H. G.: A study of sex differences in intelligence test scores among 1300 Negro college freshmen, *J. Negro Educ.*, 1943, **12**, 117-172.
125. CANTRIL, H., and ALLPORT, G. W.: Recent applications of the study of values, *J. Abnorm. Soc. Psychol.*, 1933, **28**, 259-273.
126. CARLSON, H. B.: Attitudes of undergraduate students, *J. Soc. Psychol.*, 1934, **5**, 202-213.
127. CARMICHAEL, H. T.: A psychoanalytic study of a case of eunuchoidism, *Psychoanal. Quart.*, 1941, **10**, 243-266.
128. ———, NOONAN, W. J., and KENYON, A. T.: The effects of testosterone propionate in impotence, *Amer. J. Psychiat.*, 1941, **97**, 919-943.
129. CARPENTER, C. R.: A field study in Siam of the behavior and social relations of the gibbon (*Hylobates lar.*) *Comp. Psychol. Monogr.*, 1940, **16**, No. 5, pp. 212.
130. ———: A field study of the behavior and social relations of howling monkeys, *Comp. Psychol. Monogr.*, 1934, **10**, No. 48, pp. 168.
131. ———: Behavior of red spider monkeys in Panama, *J. Mammal.*, 1935, **16**, 171-180.
132. ———: Psychobiological studies of social behavior in Aves. I. The effect of complete and incomplete gonadectomy on the primary sexual activity of the male pigeon, *J. Comp. Psychol.*, 1933, **16**, 25-57.
133. ———: Sexual behavior of free ranging rhesus monkeys (*Macaca mulatta*). I. Specimens, procedures and behavioral characteristics of estrus, *J. Comp. Psychol.*, 1942, **33**, 113-142.
134. ———: Sexual behavior of free ranging rhesus monkeys (*Macaca mulatta*). II. Periodicity of estrus, homosexual, auto-erotic and non-conformist behavior, *J. Comp. Psychol.*, 1942, **33**, 143-162.
135. ———: Societies of Monkeys and Apes. In CATTELL, J. (Ed.): *Biological Symposia*, 1942, **8**, 177-204.
136. ———: The menstrual cycle and body temperature in two gibbons, *Anat. Rec.*, 1941, **79**, 291-296.
137. CAUSEY, D., and WATERS, R. H.: Parental care in mammals with especial reference to the carrying of young by the albino rat, *J. Comp. Psychol.*, 1936, **22**, 241-254.
138. CITTLERS, A. T.: Some notes on sex mores among Negro children, *Amer. J. Orthopsychiat.*, 1936, **6**, 442-448.
139. CIOCCO, A.: On human social biology. II. Disruptive and cohesive factors in the marital group, *Hum. Biol.*, 1938, **10**, 555-574.
140. CLAUBERG, C., and SCHULTE, K. W.: Die Folgen der Sterilisierung und der Kastration bei Mann und Frau, *Z. ärztl. Fortbild.*, 1934, **31**, 425-430.

141. COLLINS, M.: *Colour-Blindness*, New York: Harcourt, 1925, pp. XXXI + 237.
142. CONKLIN, E. S.: *Principles of Adolescent Psychology*, New York: Holt, 1935, pp. IX + 437.
143. ———, BYROM, M. E., and KNIPS, A.: Some mental effects of menstruation, *Ped. Sem.*, 1927, **34**, 357-367.
144. CONN, J. H.: Children's reactions to the discovery of genital differences, *Amer. J. Orthopsychiat.*, 1940, **10**, 747-755.
145. ———: Factors influencing development of sexual attitudes and sexual awareness in children, *Amer. J. Dis. Child.*, 1939, **58**, 738-745.
146. ———: Sex attitudes and sex awareness in young children, *Child Study*, 1939, **16**, 86-87, 106.
147. ———: Sexual curiosity of children, *Amer. J. Dis. Child.*, 1940, **60**, 1110-1119.
148. ———: The aggressive female "psychopathic" personality, *J. Nerv. Ment. Dis.*, 1942, **95**, 316-334.
149. ———, and KANNER, L.: Spontaneous erections in early childhood, *J. Pediat.*, 1940, **16**, 337-340.
150. COOKE, G. C.: Sexual inadequacy, *North Carolina Med. J.*, 1940, **1**, 657-661.
151. COOLIDGE, H. J., JR.: Notes on a family of breeding gibbons, *Hum. Biol.*, 1933, **5**, 288-294.
152. CORNER, G. W.: Ovulation and menstruation in *Macacus rhesus*, *Carnegie Inst. Wash. Contrib. Embryol.*, 1923, **15** (75), 73-101.
153. ———: *The Hormones in Human Reproduction*, Princeton: University Press, 1942, pp. XIX + 265.
154. ———: The menstrual cycle of the Malayan monkey, *Macaca Iruis*, *Anat. Rec.*, 1932, **52**, 401-409.
155. CRAIG, W.: Male doves reared in isolation, *J. Animal Behav.*, 1914, **4**, 121-133.
156. CRAWFORD, M. P.: Dominance and social behavior of chimpanzees in a non-competitive situation, *J. Comp. Psychol.*, 1942, **33**, 267-277.
157. ———: The relation of social dominance and the menstrual cycle in female chimpanzees, *J. Comp. Psychol.*, 1940, **30**, 483-513.
158. ———: The social psychology of the vertebrates, *Psychol. Bull.*, 1939, **36**, 407-446.
159. CREEVY, C. D., and REA, C. E.: The treatment of impotence by male sex hormone, *Endocrinology*, 1940, **27**, 392-394.
160. CRISSMAN, P.: Temporal change and sexual difference in moral judgments, *J. Soc. Psychol.*, 1942, **16**, 29-38.
161. CRISWELL, J. H.: Racial cleavage in Negro-White groups, *Sociometry*, 1937, **1**, 81-89.
162. CUBER, J. F.: Changing courtship and marriage customs, *Ann. Amer. Acad. Polit. Soc. Sci.*, 1943, **229**, 30-38.
163. DANIELS, G. E.: An approach to psychological control studies of urinary sex hormones, *Amer. J. Psychiat.*, 1943, **100**, 231-239.

164. ——, and TAUBER, E. S.: A dynamic approach to the study of replacement therapy in cases of castration, *Amer. J. Psychiat.*, 1941, **97**, 905-918.
165. DAVENPORT, F. I.: Adolescent interests, *Arch. Psychol.*, N. Y., 1923, No. 66, pp. 62.
166. DAVIS, A.: American status systems and the socialization of the child, *Amer. Sociol. Rev.*, 1941, **6**, 345-356.
167. ——: Socialization and adolescent personality, *Yearbk. Nat. Soc. Stud. Educ.*, 1944, **43**, 198-216.
168. DAVIS, K. B.: *Factors in the Sex Life of 2200 Women*, New York: Harper, 1929, pp. XX + 430.
169. ——: Periodicity of sex desire, *Amer. J. Obstet. Gynec.*, 1926, **12**, 824-838.
170. DEEGAN, D. Y.: *Single Women in American Novels*, Teachers College, Columbia University (In preparation).
171. DEMPSEY, E. W., HERTZ, R., and YOUNG, W. C.: The experimental induction of oestrus (sexual receptivity) in the normal and ovariectomized guinea pig, *Amer. J. Physiol.*, 1936, **116**, 201-209.
172. ——, MYERS, H. I., YOUNG, W. C., and JENNISON, D. B.: Absence of light and the reproductive cycle in the guinea pig, *Amer. J. Physiol.*, 1934, **109**, 307-311.
173. DENNIS, W.: Observations on two responses of the white rat, *J. Genet. Psychol.*, 1928, **35**, 626-627.
174. DEVEREAUX, G.: Institutionalized homosexuality of the Mohave Indians, *Hum. Biol.*, 1937, **9**, 498-527.
175. DICKINSON, R. L.: *Human Sex Anatomy*. Baltimore: Williams & Wilkins, 1933, pp. XIII + 145.
176. ——: Premarital examination as routine preventive gynecology, *Amer. J. Obstet. Gynec.*, 1928, **18**, 631-641.
177. ——: The gynecology of homosexuality. In HENRY, G. W.: *Sex Variants*, 2 vols., New York: Hoeber, 1941, pp. XX + 1179.
178. —— and BEAM, L.: *A Thousand Marriages: A Medical Study of Sex Adjustment*, Baltimore: Williams & Wilkins, 1931, pp. XXV + 482.
179. DICKS, G. H., and CHILDERS, A. T.: The social transformation of a boy who had lived his first 14 years as a girl. A case history. *Amer. J. Orthopsychiat.*, 1934, **4**, 580-517.
180. —— and ——: The social transformation of a boy who had lived his first fourteen years as a girl. II. Fourteen years later, *Amer. J. Orthopsychiat.*, 1944, **14**, 448-452.
181. DILLON, E. J.: *Russia, To-day and Yesterday*, New York: Doubleday, 1930, pp. VIII + 325.
182. DILLON, M. S.: Attitudes of children toward their own bodies and those of other children, *Child Developm.*, 1934, **5**, 165-176.
183. DOLLARD, J.: Mental hygiene and a "Scientific Culture," *Int. J. Eth.*, 1935, **65**, 431-439.

184. DOOLEY, L.: The genesis of psychological sex differences, *Psychiatry*, 1938, 1, 181-195.
185. DRUMMOND, L. M.: *Youth and Instruction in Marriage and Family Living*, Columbia Univ. Contrib. Educ., Teach. Coll. Series, 1942, No. 856, pp. IX + 186.
186. EDDY, S.: *The Challenge of Russia*, New York: Farrar, 1931, pp. X + 278.
187. ELDER, J. H., and YERKES, R. M.: The sexual cycle of the chimpanzees, *Anat. Rec.*, 1936, 67, 119-143. 6 figs.
188. ELLIS, H.: *Studies in the Psychology of Sex*, 4 vols., New York: Random House, 1936.
189. ENGEL, P.: Female mating behavior shown by male mice after treatment with different substances, *Endocrinology*, 1942, 30, 623.
190. ENGLE, E. T., and SHELESNYAK, M. C.: First menstruation and subsequent menstrual cycles of pubertal girls, *Hum. Biol.*, 1934, 6, 431-453.
191. EVANS, H. M.: Endocrine glands, gonads, pituitary and adrenals. In LUCK, J. M. and HALL, V. E. (Eds.): *Annu. Rev. Physiol.*, 1939, 1, 577-652.
192. EVANS, L. T.: A study of a social hierarchy in the lizard, *Anolis carolinensis*, *J. Genet. Psychol.*, 1936, 48, 88-111.
193. ———: Behavior of castrated lizards, *J. Genet. Psychol.*, 1936, 48, 217-221.
194. ———: Cuban field studies on territoriality of the lizard, *Anolis sagrei*, *J. Comp. Psychol.*, 1938, 25, 97-125.
195. ———: Social behavior of the normal and castrated lizard, *Anolis carolinensis*, *Science*, 1936, 88, 104.
196. ———: Territorial behavior of normal and castrated females of *Anolis carolinensis*, *J. Genet. Psychol.*, 1936, 49, 49-60.
197. EWERS, D.: Mating a blond ring-dove with two females simultaneously, *J. Comp. Psychol.*, 1942, 33, 75-86.
198. EXNER, M. J.: *Problems and Principles of Sex Education: A Study of 948 College Men*, New York: Association Press, 1915, pp. 39.
199. ———: Progress in sex education, *J. Soc. Hyg.*, 1929, 15, 393-407.
200. FAIRCHILD, M.: The Russian family today, *J. Amer. Ass. Univ. Women*, 1937, 30, 142-148.
201. FARRAR, C. B., and FRANKS, R. M.: Menopause and psychosis, *Amer. J. Psychiat.*, 1931, 10, 1031-1044.
202. FERGUSON, L. W.: Correlates of marital happiness, *J. Psychol.*, 1938, 6, 285-294.
203. ———: Correlates of woman's orgasm, *J. Psychol.*, 1938, 6, 295-302.
204. ———: The cultural genesis of masculinity-femininity, *Psychol. Bull.*, 1941, 38, 584-585. Abstract.
205. FILSKOV, A.: Om hyppigheden af psykoser i klimakteriet, *Ugeskr. Laeg.*, 1936, 98, 235-237. (*Psychol. Abst.*, 1936, 10, No. 3545).
206. FINCH, G., YERKES, R. M., and ELDER, J. H.: Bodily electrical potential changes associated with ovulation and early pregnancy in the chimpanzee, *Proc. Soc. Exp. Biol. N. Y.*, 1937, 37, 560-563.

207. FINESINGER, J. E., MEIGS, J. V., and SULKOWITCH, H. W.: Clinical, psychiatric and psychoanalytic study of male pseudohermaphroditism, *Amer. J. Obstet., Dis. Wom.*, 1942, **44**, 310-317.
208. FOLEY, J. P., JR.: First year development of a rhesus monkey reared in isolation, *J. Genet. Psychol.*, 1934, **46**, 39-105.
209. ———: Second year development of a rhesus monkey reared in isolation during first 18 months, *J. Genet. Psychol.*, 1935, **47**, 73-97.
210. FOLSOM, J. K. (Ed.) et al.: *Plan for Marriage*. New York: Harper, 1938, pp. XII + 305.
211. FORD, C. A.: Homosexual practices of institutionalized females, *J. Abnorm. Soc. Psychol.*, 1929, **23**, 442-448.
212. FOX, II.: The birth of two anthropoid apes, *J. Mammal.*, 1929, **10**, 37-51.
213. FRANK, L. K.: The adolescent and the family, *Yearb. Nat. Soc. Stud. Educ.*, 1944, **43**, 240-254.
214. FRANK, R. T.: *The Female Sex Hormone*. London, Baillière, 1929, pp. 321.
215. FRAZIER, C. N., and MU, J. W.: Development of female characteristics in adult male rabbits following prolonged administration of estrogenic substance, *Proc. Soc. Exp. Biol. N. Y.*, 1934, **32**, 997-1001.
216. FREUD, S.: *Civilization and Its Discontents* (Trans. by Rivière), London: Hogarth, 1930, pp. 144.
217. ———: On the History of the Psychoanalytic Movement. In *Collected Papers*, I, 1924, 287-359.
218. ———: *The Ego and the Id* (Trans. by Rivière), London: Hogarth, 1927, pp. 88.
219. ———: *Totem and Taboo* (Trans. by Brill), New York: Moffatt Yard, 1918, pp. X + 265.
220. FREUND, A.: Untersuchungen zur Handlungs- und Affektpsychologie. VII. Psychische Sättigung im Menstruum und Intermenstruum, *Psychol. Forsch.*, 1930, **13**, 198-217.
221. FRIEDMAN, M.: Reproduction in mammals. In LUCK, J. M., and HALL, V. E. (Eds.) *Ann. Rev. Physical.*, 1941, **3**, 617-642.
222. FRIEDMANN, H.: Bird societies. In MURCHISON, C. (Ed.): *A Handbook of Social Psychology*, Worcester: Clark University Press, 1935, 142-184.
223. FROMM, E.: *Escape from Freedom*, New York: Farrar, 1941, pp. IX + 305.
224. ———: *Studien über Autorität und Familie*, Paris: Félix Alcan, 1936, Social psychologische Teil, 77-135.
225. FROMM-REICHMANN, FRIEDA: Notes on the mother role in the family group, *Bull. Menninger Clin.*, 1940, **4**, 132-148.
226. FUERSTNER, P. G.: Some neurophysiological aspects of the menstrual cycle and its disturbances, *J. Nerv. Ment. Dis.*, 1944, **99**, 588-594.
227. GALANT, S.: Sexualleben im Säuglings und Kindesalter. *Neurol. Zbl.*, 1919, **38**, 652-656.

228. GALLOWAY, T. W.: The colleges and sex education reports. Report II. Departmental syllabi, *Amer. Soc. Hyg. Ass.*, 1929, Pamphlet C, *Psychol.* (p. 646).
229. GARDNER, G. E.: A factor in the sex education of children, *Ment. Hyg.*, N. Y., 1944, **28**, 55-63.
230. GARDNER, L. PEARL: A survey of the attitudes and activities of fathers, *J. Genet. Psychol.*, 1943, **63**, 15-53.
231. GEAR, H. S.: The oestrous cycle of the baboon, *S. African J. Sci.*, 1926, **23**, 706-712.
232. GILBERT, G. M.: Sex differences in musical aptitude and training, *J. Gen. Psychol.*, 1942, **26**, 19-33.
233. GILKINSON, H.: Masculine temperament and secondary sex characteristics: a study of the relationship of psychological and physical measures of masculinity, *Genet. Psychol. Monogr.*, 1937, **19**, 105-154.
234. GILL, M. M.: Functional disturbances of menstruation, *Bull. Menninger Clin.*, 1943, **7**, 1-14.
235. GILLMAN, J.: The cyclical changes in the vaginal smear in the baboon and its relationship in the perineal swelling, *S. African J. Med. Sci.*, 1937, **2**, 44-56.
236. GINSBURG, B., and ALLEE, W. C.: Some effects of conditioning on social dominance and subordination in inbred strains of mice, *Physiol. Zool.*, 1942, **15**, 485-506.
237. GLASS, S. J., and MCKENNON, B. J.: The hormonal aspects of sex reversal states, *West. J. Surg.*, 1937, **45**, 467.
238. ———, DUEL, H. J., and WRIGHT, C. A.: Sex hormone studies in male homosexuality, *Endocrinology*, 1940, **26**, 590-594.
239. GOLDSCHMIDT, T.: Menstrual taboo and women's psychology, *J. Abnorm. Soc. Psychol.*, 1934, **29**, 218-221.
240. GOODENOUGH, F. L.: The consistency of sex differences in mental traits at various ages, *Psychol. Rev.*, 1927, **34**, 440-462.
241. GOODMAN, L., and WISLOCKI, G. B.: Cyclical uterine bleeding in a New World monkey (*Atèles geoffroyi*), *Anat. Rec.*, 1935, **61**, 379-387.
242. GOODSELL, W.: *A History of Marriage and the Family*, New York: Macmillan, 1934, pp. XX + 590.
243. GORER, G.: Themes in Japanese culture, *Trans. N. Y. Acad. Sci.*, 1943, **5**, 106-124.
244. GREEN, E. H.: Group play and quarreling among preschool children, *Child Developm.*, 1933, **4**, 302-307.
245. GREENBLATT, R. B., MOTARA, F., and TORPIN, R.: Sexual libido in the female, *Amer. J. Obstet. Gynec.*, 1942, **44**, 658-663.
246. GREENE, K. B.: The social and professional status of women, *Teach. Coll. Rec.*, 1940, **42**, 206-211.
247. GRUENBERG, B. C., and KANKONEN, J. L.: High schools and sex education, *U. S. Pub. Health Serv. Educ. Publ.*, 1940, No. 7, pp. XIX + 110.

248. GRUNFELD, J.: Women's work in Russia's planned economy, *Soc. Res.*, 1942, 9, 22-45.
249. GUILFORD, J. P.: Introversion-extroversion, *Psychol. Bull.*, 1934, 31, 331-354.
250. GUNN, D. L., JENKIN, P. M., and GUNN, A. L.: Menstrual periodicity; statistical observations on a large sample of normal cases, *J. Obstet. Gynaec. Brit. Emp.*, 1937, 44, 839-879.
251. GUREWITSCH, Z. A., and GROSSER, F. J.: Das Geschlechtsleben der Gegenwart. *Z. f. Sex.-wiss. u. Sex.-polit.*, 1928, 15, 514-546.
252. HALBERSTADT, G.: Contribution à l'étude des psychoses d'involution. La dysphrénie antitomique, *Ann. méd.-psychol.*, 1933, 91, 470-481.
253. HALL, C.: The instability of postwar marriages, *J. Soc. Psychol.*, 1934, 5, 523-530.
254. HALLE, F. W.: *Women in the Soviet East*, New York: Dutton, 1938, pp. XVII + 363.
255. HALVERSON, H. M.: Infant sucking and tensional behavior, *J. Genet. Psychol.*, 1938, 53, 365-430.
256. HAMAN, JOHN O.: Length of cycle of 150 normal women, *Amer. J. Obstet. Gynec.*, 1942, 43, 870-873.
257. HAMILTON, A.: The enslavement of women. In *Nazism: An Assault on Civilization*, New York: H. Smith, 1934, 76-87.
258. HAMILTON, D. M.: Some aspects of homosexuality in relation to total personality development, *Psychiat. Quart.*, 1939, 13, 229-244.
259. HAMILTON, G. V.: *A Research in Marriage*, New York: Boni, 1929, pp. XIII + 570.
260. ———: A study of sexual tendencies in monkeys and baboons, *J. Animal Behav.*, 1914, 4, 295-318.
261. ———: Changes in personality and psychosexual phenomena with age. In COWDRY, E. V.: *Problems of Ageing: Biological and Medical Aspects*, Baltimore: Williams & Wilkins, 1938, pp. 459-482.
262. HAMILTON, J. B.: Demonstrated ability of penile erection in castrate men with markedly low titers of urinary androgens, *Proc. Soc. Exp. Biol., N. Y.*, 1943, 54, 309-312.
263. ———: Precocious masculine behavior following administration of synthetic male hormone substance, *Endocrinology*, 1938, 23, 53-57.
264. ———: Treatment of sexual underdevelopment with synthetic male hormone substance, *Endocrinology*, 1937, 21, 649-654.
265. ———, DOREMAN, R. I., and HUBERT, G. R.: Androgenic and estrogenic substances in urine of eunuchoid and castrate men, *J. Lab. Clin. Med.*, 1942, 27, 917-927.
266. ——— and GOLDEN, W. R. C.: Responses of the female to male hormone substances, *Endocrinology*, 1939, 25, 737-748.
267. HAMILTON, V. C. (Ed. and Trans.): Sweden, Population Commission Report on the sex question. *Nat. Comm. on Mat. Health. Medical aspects of human fertility series*, Baltimore: Williams and Wilkins, 1940, pp. XX + 182.

268. HAMLETT, G. W. D.: Reproduction in American monkeys. I. Estrous cycle, ovulation and menstruation in *Cebus*, *Anat. Rec.*, 1939, **73**, 171-187.
269. HANKS, L. M., JR.: The Northern Blackfoot. Unpub. notes, personal communication.
270. HARLOW, H. F.: An experimental study of the feeding reactions and related behavior patterns of the albino rat. Unpub. Ph.D. Thesis. Stanford Univ., 1930, pp. 170.
271. HARTMAN, C. G.: Endocrine influences on instinctual processes, *Psychosom. Med.*, 1942, **4**, 206-210.
272. ———: Studies in the development of the opossum. V. The phenomena of parturition, *Anat. Rec.*, 1920, **19**, 1-11.
273. ———: Studies in the reproduction of the monkey *Macacus (Pithecius) rhesus* with special reference to menstruation and pregnancy, *Carnegie Inst. Wash. Contrib. Embryol.*, 1932, **23**, No. 134, 1-161.
274. ———: The oestrous cycle in the opossum, *Amer. J. Anat.*, 1923, **32**, 353-395. 14 plates.
275. ———: The period of gestation in the monkey, *Macacus rhesus*, first description of parturition in monkeys, size and behavior of the young, *J. Mammal.*, 1928, **9**, 181-194.
276. ——— and TINKLEPAUGH, O. L.: Weitere Beobachtungen über die Geburt beim Affen *Macacus rhesus*, *Arch. f. Gynäk.*, 1932, **149**, 21-37.
277. Harvey, O. L.: Some statistics derived from recent questionnaire studies relative to human sexual behavior, *J. Soc. Psychol.*, 1932, **3**, 97-100.
278. ———: The institutionalization of human sexual behavior: A study of frequency distribution, *J. Abnorm. Soc. Psychol.*, 1935, **29**, 427-433.
279. HATTENDORF, K. W.: A study of the questions of young children concerning sex, *J. Soc. Psychol.*, 1932, **3**, 37-65.
280. HATTWICK, L. A.: Sex differences in behavior of nursery school children, *Child Developm.*, 1937, **8**, 343-355.
281. HELGERSON, E.: The relative significance of race, sex, and facial expression in choice of playmate by the preschool child, *J. Negro Educ.*, 1943, **12**, 617-622.
282. HEMMINGSEN, A. M.: Studies on the oestrous-producing hormone (oestrin), *Skand. Arch. Physiol.*, 1933, **65**, 97-250.
283. ——— and KRARUP, N.: Shifting the oestrous cycle in the rat 12 hours by artificial day-night reversal, *Proc. 15th Int. Physiol. Cong.*, 1935, pp. 150.
284. HEMPHILL, R. E., and RIESS, M.: Investigations into the significance of the endocrines in involutional melancholia, *J. Ment. Sci.*, 1940, **86**, 1065-1077.
285. HENRY, G. W.: Psychogenic and constitutional factors in homosexuality, *Psychiat. Quart.*, 1934, **8**, 243-264.
286. ———: Psychogenic factors in overt homosexuality, *Amer. J. Psychiat.*, 1937, **93**, 889-908.
287. ———: *Sex Variants*, 2 vols., New York: Hoeber, 1941, pp. XX + 1179.

288. —— and GALBRAITH, H. M.: Constitutional factors in homosexuality, *Amer. J. Psychiat.*, 1934, **13**, 1249-1267.
289. —— and GROSS, A. A.: Social factors in the case histories of 100 underprivileged homosexuals, *Ment. Hyg., N. Y.*, 1938, **22**, 591-611.
290. HERTZ, M. R.: Some personality changes in adolescence as revealed by the Rorschach method, *Psychol. Bull.*, 1940, **37**, 515-516. Abstract.
291. HINDS, M.: *Humanity Uprooted*, New York: J. Cape, 1929, pp. XIX + 369.
292. HIRST, J. C., and STROUSSE, F.: Origin of emotional factors in normal pregnant women, *Amer. J. Med. Sci.*, 1938, **196**, 95-99.
293. HISAW, F. L., and ASTWOOD, E. B.: The physiology of reproduction. In LUCK, J. M., and HALL, V. E. (Ed.): *Annu. Rev. Physiol.*, 1942, **4**, 503-560.
294. HITCHCOCK, F. A.: Studies in vigor. V. The comparative activity of male and female albino rats, *Amer. J. Physiol.*, 1925, **75**, 205-210.
295. HITLER, A.: *My New Order*, New York: Reynal, 1941, pp. XV + 1008.
296. HOFFMAN, M. H.: Male hormones (testosterone propionate), *Minnesota Med.*, 1939, **22**, 767-771.
297. HOLLINGWORTH, L. S.: *Functional periodicity: An experimental study of the mental and motor abilities of women during menstruation*, Columbia University Contr. Educ., Teach. Coll. Series., 1914, No. 69, pp. 101.
298. HORNEY, K.: *New Ways in Psychoanalysis*, New York: Norton, 1939, pp. 313.
299. HOROWITZ, E. L., and HOROWITZ, R. E.: Development of social attitudes in children, *Sociometry*, 1938, **1**, 301-338.
300. HOSKINS, R. G.: *Endocrinology*, New York: Norton, 1941, pp. 388.
301. ——: Studies on vigor. II. The effect of castration on voluntary activity, *Amer. J. Physiol.*, 1925, **72**, 324-330.
302. HU, C. K., and FRAZIER, C. N.: Masculinizing of adult female rabbit following injection of testosterone propionate, *Proc. Soc. Exp. Biol., N. Y.*, 1939, **42**, 820-823.
303. HUBERT, R.: Der Einfluss des Menstruationszyklus auf geistige Leistungen, *Arch. Gynäk.*, 1934, **158**, 275-294.
304. HUGHES, W. L.: Sex experiences of boyhood, *J. Soc. Hyg.*, 1926, **12**, 262-273.
305. HUMPHREY, G.: The conditioned reflex and the Freudian wish, *J. Abnorm. Soc. Psychol.*, 1920, **14**, 388-392.
306. HUNT, J. MCV.: The effects of infant feeding-frustration upon adult hoarding in the albino rat, *J. Abnorm. Soc. Psychol.*, 1941, **36**, 338-360.
307. HURLOCK, E. B., and KLEIN, E. R.: Adolescent "crushes," *Child Developm.*, 1934, **5**, 63-80.
308. ISHII, O.: Observations on the sexual cycle of the guinea pig, *Biol. Bull.*, 1920, **38**, 237-250.
309. JACOBI, E.: Die Psychosen und Psychoneurosen in der Involution des Mannes. Gleichzeitig ein Beitrag zur Frage des "Klimakterium virile," *Arch. f. Psychol.*, 1931, **93**, 358-408.

310. JAMES, WILLIAM: *Principles of Psychology*, 2 vols., New York: Holt, 1890.
311. JAMIESON, G. R., and WALL, J. H.: Mental reactions at the climacterium, *Amer. J. Psychiat.*, 1932, **11**, 895-909.
312. JENKINS, M.: The effect of segregation on the sex behavior of the white rat as measured by the obstruction method, *Genet. Psychol. Monogr.*, 1928, **3**, 457-571.
313. JENNINGS, H. S.: The transition from the individual to the social level, *Science*, 1941, **94**, 447-453.
314. JERSILD, A. T., MARKEY, F. V., and JERSILD, C. L.: Children's fears, dreams, wishes, daydreams, likes, dislikes, pleasant and unpleasant memories, *Child Develpm. Monogr.*, 1933, No. 12, pp. XI + 172.
315. JOHNSON, W. B., and TERMAN, L. M.: Personality characteristics of happily married, unhappily married, and divorced couples, *Character & Pers.*, 1935, **3**, 290-311.
316. ——— and ———: Some highlights in the literature of psychological sex differences published since 1920, *J. Psychol.*, 1940, **9**, 327-336.
317. JONES, E. S.: The opinions of college students, *J. Appl. Psychol.*, 1926, **10**, 427-436.
318. JONES, H. E., and READ, K.: Sex education for the preschool child, *Hygeia*, 1941, **19**, 360-362.
319. KARDINER, A.: *The Individual and His Society*, New York: Columbia Univ. Press, 1939, pp. XXVI + 503.
320. KASANIN, J., and BISKIND, G. R.: Personality changes following substitution therapy in preadolescent eunuchoidism, *J. Amer. Med. Ass.*, 1943, **14**, 1319-1321.
321. KATZ, D., and ALLPORT, F. H.: *Students' Attitudes: A Report of the Syracuse University Reaction Study*, Syracuse: The Craftsman Press, 1931, pp. XXVIII + 408.
322. KELLY, E. L.: Marital compatibility as related to personality traits of husbands and wives, as rated by self and spouse, *J. Soc. Psychol.*, 1941, **13**, 193-198.
323. KEMPF, E. J.: The social and sexual behavior of infrahuman primates with some comparable facts in human behavior, *Psychoanal. Rev.*, 1917, **4**, 127-154.
324. KENDEIGH, S. C.: Territorial and mating behavior of the house wren, *Ill. Biol. Monogr.*, Univ. of Ill. Press, 1941, **18**, No. 3, pp. 120. 32 figs.
325. KENYON, A. T.: The effect of testosterone propionate on the genitalia, prostate, secondary sex characters, and body weight in eunuchoidism, *Endocrinology*, 1938, **23**, 121-134.
326. KESSELRING, M.: Formende Kräfte im weiblichen Arbeitsdienst. Ein untersuchender Beitrag zur völkischen Jugendkunde, *Z. pädag. Psychol.*, 1941, **42**, 49-68.
327. KIERNAN, J. G.: Thumbsucking as an auto-erotic phenomenon, *Pediatrics*, 1911, **23**, 197-212.

328. KINDER, E. F.: A study of the nest building activity of the albino rat, *J. Exp. Zool.*, 1927, **47**, 117-161.
329. KINSEY, A. C.: Homosexuality; criteria for a hormonal explanation of the homosexual, *J. Clin. Endocrin.*, 1941, **1**, 424-428.
330. KIRKENDALL, L.: *Sex Adjustments of Young Men*, New York: Harper, 1940, pp. XIII + 215.
331. KIRKPATRICK, C.: A comparison of generations in regard to attitude toward feminism, *J. Genet. Psychol.*, 1936, **49**, 343-361.
332. ———. A methodological analysis of feminism in relation to marital adjustment, *Amer. Sociol. Rev.*, 1939, **4**, 325-334.
333. ———: Community of interest and the measurement of marriage adjustment, *Family*, 1937, **18**, 133-137.
334. ———: Recent changes in the status of women and the family in Germany, *Amer. Sociol. Rev.*, 1937, **2**, 650-658.
335. ———: Techniques of marital adjustment, *Ann. Amer. Acad. Polit. Soc. Sci.*, 1932, **160**, 178-183.
336. ———: The measurement of ethical inconsistency in marriage, *Int. J. Eth.*, 1936, **46**, 444-460.
337. ———: *Woman in Nazi Germany*, London: Jarrolds, 1939, pp. 319.
338. KITAY, P. M.: A comparison of the sexes in their attitudes and beliefs about women: A study of prestige groups, *Sociometry*, 1940, **3**, 399-407.
339. KLEIN, M.: *The Psycho-analysis of Children*. (Trans. by Strachey), New York: Norton, 1932, pp. 393.
340. KLINEBERG, O.: *Social Psychology*, New York: Holt, 1940, pp. XII + 570.
341. KLOPFER, B.: Personality differences of boys and girls in early childhood, *Psychol. Bull.* 1939, **36**, 538. Abstract.
342. KOSTER, R.: Hormone factors in male behavior of the female rat, *Endocrinology*, 1943, **33**, 337-348.
343. KRAFFT-EBING, R. v.: *Psychopathia Sexualis*. (Translated by F. J. Rebman), 12th ed., New York: Pioneer, 1939, pp. XIII + 626.
344. KUO, Z. Y.: A psychology without heredity, *Psychol. Rev.*, 1924, **31**, 427-448.
345. KYLE, H. M.: *The Biology of Fishes*, London: Sidgwick, 1926, pp. XVI + 396.
346. LAKE, G. B.: Psychic factors in sexual impotence, *Clin. Med. Surg.*, 1938, **45**, 467-472.
347. LANDIS, C., and BOLLES, M. M.: *Personality and Sexuality of the Physically Handicapped Woman*, New York: Hoeber, 1942, pp. xii + 171.
348. ——— and ———: Psychosexual immaturity, *J. Abnorm. Soc. Psychol.*, 1940, **35**, 449-452.
349. ———, LANDIS, A. T., and BOLLES, M. M.: *Sex in Development*, New York: Hoeber, 1940, pp. XX + 329.
350. LANG, T.: Studies in the genetic determination of homosexuality, *J. Nerv. Mental Dis.*, 1940, **92**, 55-64.
351. LANGE, J. F. E. A.: Die Folgen der Entmannung Erwachsener an der hand der Kriegserfahrungen dargestellt, Leipzig: Thieme, In *Arbeit und Gesundheit*, 1934, **24**, pp. 177.

352. LANGFORD, W. S.: Thumb and finger sucking in childhood, *Amer. J. Dis. Child.*, 1939, **58**, 1290-1300.
353. LAQUEUR, G. L.: Effects of testosterone propionate on the mammary glands of female albino rats, *Endocrinology*, 1943, **32**, 81-86.
354. LASHLEY, K. S., and WATSON, J. B.: Notes on the development of a young monkey, *J. Animal Behav.*, 1913, **3**, 114-139.
355. LEBLOND, C. P.: Extra-hormonal factors in maternal behavior, *Proc. Soc. Exp. Biol., N. Y.*, 1938, **38**, 66-70.
356. ———: L'éveil du comportement maternel chez la souris, *Ann. de Physiol.*, 1938, **14**, 584-585.
357. ———: Nervous and hormonal factors in the maternal behavior of the mouse, *J. Genet. Psychol.*, 1940, **57**, 327-344.
358. LEICHSENRING, J. M., DONELSON, E. G., and WALL, L. M.: Studies of blood of high school girls, *Amer. J. Dis. Child.*, 1941, **62**, 262-272.
359. LEONARD, S. L.: Induction of singing in female canaries by injections of male hormone, *Proc. Soc. Exp. Biol., N. Y.*, 1939, **41**, 229-230.
360. LEVICK, G. M.: *Antarctic Penguins*, London: Heinemann, 1914, pp. X + 140.
361. LEVY, D. M.: "Control-situation" studies of children's responses to the difference in genitalia, *Amer. J. Orthopsychiat.*, 1940, **10**, 755-763.
362. ———: Finger-sucking and accessory movements in early infancy: An etiologic study, *Amer. J. Psychiat.*, 1928, **7**, 881-918.
363. ———: Psychosomatic studies of some aspects of maternal behavior, *Psychosom. Med.*, 1942, **4**, 223-227.
364. LEWIN, K.: *A Dynamic Theory of Personality*, New York: McGraw-Hill, 1935, pp. IX + 286.
365. ———: *Principles of Topological Psychology*, New York: McGraw-Hill, 1936, pp. XV + 231.
366. LEWIS, O.: Manly hearted women among the North Piegan, *Amer. Anthropol.*, 1941, **43**, 173-187.
367. LICHT, H. (PAUL BRANDT): *Sexual Life in Ancient Greece*, London: Routledge, 1932, pp. XV + 557.
368. LINTON, R.: *The Study of Man*, New York: Appleton, 1936, pp. VIII + 503.
369. LONG, J. A., and EVANS, H. M.: The oestrous cycle in the rat and its associated phenomena, *Univ. Calif. Mem.*, 1922, **6**, pp. 148.
370. LOUGH, O. M.: A psychological study of functional periodicity, *J. Comp. Psychol.*, 1937, **24**, 359-368.
371. ———: The effect of functional periodicity on the learning process, *J. Genet. Psychol.*, 1937, **50**, 307-322.
372. LOUTTIT, C. M.: Reproductive behavior of the guinea pig. I. The normal mating behavior, *J. Comp. Psychol.*, 1927, **7**, 247-263.
373. ———: Reproductive behavior of the guinea pig. II. The auto-genesis of the reproductive behavior pattern, *J. Comp. Psychol.*, 1929, **9**, 293-304.
374. LOWTHER, F. DE L.: A study of the activities of a pair of *Galago senegalensis*

- moholi* in captivity, including the birth and postnatal development of twins, *Zoologica*, 1940, **25** (Pt. 4), 433-462. 6 plates.
375. LUCAS, N. S., HUME, E. M., and SMITH, H. H.: On the breeding of the common marmoset (*Hapale jacchus* Linn.) in captivity when irradiated with ultra-violet rays, *Proc. Zool. Soc., Lond.*, 1927, Part 1, 447-451. 2 plates.
376. LUNDBERG, G. A.: Sex differences on social questions, *Sch. & Soc.*, 1926, **23**, 595-600.
377. LYND, R. S.: The Pattern of American Culture. In *Knowledge for What?* Princeton: University Press, 1939, pp. 54-113.
378. ——— and LYND, H. M.: *Middletown*, New York: Harcourt, 1929, pp. X + 550.
379. ——— and ———: *Middletown in Transition*, New York: Harcourt, 1937, pp. XVIII + 604.
380. MACFARLANE, J. W.: Studies in Child Guidance. I. Method of Data Collection and Organization, *Monogr. Soc. Res. Child Developm.*, 1938, **3**, No. 6, pp. 254.
381. ———: Study of personality development. In BARKER, R. G., KOUNIN, J. S., and WRIGHT, H. F.: *Child Behavior and Development*, New York: McGraw-Hill, 1943, 307-328.
382. McAFFEE, M. H.: Women's reserves, *Ann. Amer. Acad. Polit. Soc. Sci.*, 1943, **227**, 152-155.
383. McCANCE, R. A., LUFT, M. C., and WIDDOWSON, E. E.: Physical and emotional periodicity in women, *J. Hyg.*, 1937, **37**, 571-614.
384. McCULLAGH, E. P.: Treatment of testicular deficiency with testosterone propionate, *J. Amer. Med. Ass.*, 1939, **112**, 1037-1043.
385. ———, McCULLAGH, D. R., and HICKEN, N. F.: Diagnosis and treatment of hypogonadism in the male, *Endocrinology*, 1933, **17**, 49-63.
386. McDougall, W.: *An Introduction to Social Psychology*, London: Methuen, 1908, pp. X + 355.
387. McDowell, J. G., and PATERSON, A. S.: Physical and psychologic symptoms of the menopause, *J. Obstet. Gynec. Brit. Emp.*, 1940, **47**, 319-326.
388. McNEMAR, Q.: *The Revision of the Stanford-Binet Scale*, Boston: Houghton, 1942, pp. V + 185.
389. McQUEEN-WILLIAMS, M.: Maternal behavior in male rats, *Science*, 1935, **82**, 67-68.
390. MALAMUD, W., SANDS, S. L., and MALAMUD, I.: The involutional psychoses: a socio-psychiatric study, *Psychosom. Med.*, 1941, **3**, 410-426.
391. MALINOWSKI, B.: *Sex and Repression in Savage Society*, London: K. Paul, Trench, Trubner. New York: Harcourt, 1927, pp. XIV + 285.
392. ———: *The Father in Primitive Society*, New York: Norton, 1927, pp. 94.
393. ———: *The Sexual Life of Savages in North-western Melanesia*, 3d ed., 2 vols., London: Routledge, 1932, pp. XLIX + 506.
394. MALLOW, S.: Beitrag zur Kastration von Sexualverbrechern, *Z. Ges. Neurol. Psychiat.*, 1933, **148**, 501-528.

395. MARSHALL, F. H. A.: Sexual periodicity and the causes which determine it. The Croonian Lecture, *Phil. Trans. Roy. Soc. Lond.*, 1936, B, **226**, 423-456.
396. MASLOW, A. H.: Dominance-quality and social behavior in infra-human primates, *J. Soc. Psychol.*, 1940, **11**, 313-324.
397. ———: Self-esteem (dominance-feeling) and sexuality in women, *J. Soc. Psychol.*, 1942, **16**, 259-294.
398. ———: The role of dominance in the social and sexual behavior of infra-human primates: I. Observations at Vilas Park Zoo, *J. Genet. Psychol.*, 1936, **48**, 261-277.
399. ———: The role of dominance in the social and sexual behavior of infra-human primates: III. A theory of sexual behavior of infrahuman primates, *J. Genet. Psychol.*, 1936, **48**, 310-338.
400. ———: The role of dominance in the social and sexual behavior of infra-human primates: IV. The determination of hierarchy in pairs and in a group, *J. Genet. Psychol.*, 1936, **49**, 161-198.
401. ———, and FLANZBAUM, S.: The role of dominance in the social and sexual behavior of infra-human primates: II. An experimental determination of the behavior syndrome of dominance, *J. Genet. Psychol.*, 1936, **48**, 278-309.
402. MASURE, R. H., and ALLEE, W. C.: Flock organization of the shell-parakeet, *Melopsittacus undulatus Shaw*, *Ecology*, 1934, **15**, 388-398.
403. ——— and ———: The social order in flocks of the common chicken and pigeon, *Auk*, 1934, **51**, 306-327.
404. MAYER, A.: Die Menstruation im ihrer Beziehung zu Lebensföhring. Erlebnissen u. Krankheit, *München med. Wochenschr.*, 1935, **82**, 373-378.
405. MEAD, M.: *Coming of Age in Samoa*, New York: Morrow, 1928, pp. XV + 297.
406. ———: *Growing Up in New Guinea*, New York: Morrow, 1930, pp. IX + 372.
407. ———: Kinship in the Admiralty Islands, *Anthrop. Pap. Amer. Mus.*, 1934, **34**, 181-358.
408. ———: On the institutionalized rôle of women and character formation, *Z. f. Sozialforschung*, 1936, **5**, Heft 1, Paris, Alcan, 69-75.
409. ———: *Sex and Temperament in Three Primitive Societies*, New York: Morrow, 1935, pp. XXII + 335.
410. ———: The Mountain Arapesh, *Anthrop. Pap. Amer. Mus.*, 1938, **36**, Part III, 139-451.
411. ———: Woman, position in primitive society, *Ency. Soc. Sci.*, 1935, **15**, 439-442.
412. MEAD, W. R., and STITH, R.: Male climacteric, *J. South Carolina Med. Ass.*, 1940, **36**, 222-226.
413. MEEK, L. H. (Ed.): *The Personal-social Development of Boys and Girls with Implications for Secondary Education*, New York: Progr. Educ. Ass., 1940, pp. 243.

414. MELTZER, H.: Sex differences in children's attitudes to parents, *Psychol. Bull.*, 1936, **33**, 760-761. Abstract.
415. MENGERT, W. F.: Psychotherapy in obstetrics and gynecology, *Ment. Hyg.*, 1931, **15**, 299-314.
416. MENNINGER, K. A.: Emotional factors in organic gynecological conditions, *Bull. Menninger Clin.*, 1943, **17**, 47-55.
417. ———: Impotence and frigidity, *Bull. Menninger Clin.*, 1937, **1**, 251-260.
418. ———: Psychiatric aspects of contraception, *Bull. Menninger Clin.*, 1943, **7**, 36-40.
419. MENNINGER, W. C.: The emotional factors in pregnancy, *Bull. Menninger Clin.*, 1943, **7**, 15-24.
420. MILES, C. C.: Psychological study of a young adult male pseudohermaphrodite reared as a female. In McNEMAR Q. and MERRILL M. (Eds.): *Studies in Personality*, contributed in honor of Terman, L. M., New York: McGraw-Hill, 1942, 209-227.
421. ———: Sex in social psychology. In MURCHISON (Ed.): *A Handbook of Social Psychology*, Worcester: Clark Univ. Press, 1935, 683-797.
422. MILLER, N.: Reproduction in the brown rat (*Mus norvegicus*), *Amer. Nat.*, 1911, **45**, 623-635.
423. MILLER, N. E., HUBERT, G., and HAMILTON, J. B.: Mental and behavioral changes of male hormone treatment of adult castration, hypogonadism, and psychic impotence, *Proc. Soc. Exp. Biol.*, N. Y., 1938, **38**, 538-540.
424. MILLER, P.: An experimental study of the development of sex roles, unpub. Honors Project, Connecticut College, Psychology Laboratory.
425. MOENCH, G. L.: Psychic factors in gynecological disease, *Med. Rec.*, N. Y., 1939, **149**, 342-344.
426. MOORE, C. R., and PRICE, D.: Some effects of testosterone and testosterone-propionate in the rat, *Anat. Rec.*, 1938, **71**, 59-78.
427. MORENO, J. L.: The prediction and planning of success in marriage, *Marriage & Family Living*, 1941, **3**, 83-84.
428. MORGAN, H. P.: Involutional melancholia, *U. S. Veterans. Bur. Med. Bull.*, 1931, **7**, 933-936.
429. MOTT, S. M.: Mother-father preference, *Character & Pers.*, 1937, **5**, 302-304.
430. MOWRER, H. R.: Sex as a factor in domestic discord, *Amer. Social. Rev.*, 1936, **1**, 252-263.
431. MURCHISON, C.: The experimental measurement of a social hierarchy in *Gallus domesticus*: I. The direct identification and direct measurement of social reflex number 1, and social reflex number 2, *J. Gen. Psychol.*, 1935, **12**, 3-39.
432. ———: The experimental measurement of a social hierarchy in *Gallus domesticus*: III. The direct and inferential measurement of social reflex number 3, *J. Genet. Psychol.*, 1935, **46**, 76-102.
433. MYERSON, A., and NEUSTADT, R.: Bisexuality and male homosexuality; Their biologic and medical aspects, *Clinics*, 1942, **1**, 932-957.

434. —— and ——: The bisexuality of man, *J. Mt. Sinai Hosp.*, N. Y., 1942, **9**, 668-678.
435. MYRDAL, A. G.: *Nation and Family*, New York: Harper, 1941, pp. XV + 441.
436. NELSON, W. O.: The relation of the thymus and pineal glands to genital function. In ALLEN, E., DANFORTH, C. H., and DOISY, E. A.: *Sex and Internal Secretions*, Baltimore: Williams & Wilkins, 2d. ed., 1939, 1121-1148.
437. NEUSTADT, R., and MYERSON, A.: Quantitative sex hormone studies in homosexuality, childhood, and various neuropsychiatric disturbances, *Amer. J. Psychiat.*, 1940, **97**, 524-551.
438. NEWCOMB, T. M.: Recent changes in attitudes toward sex and marriage, *Amer. Sociol. Rev.*, 1937, **2**, 659-667.
439. ——, and SVEHLA, G.: Intra-family relationships in attitude, *Sociometry*, 1937, **1**, 180-205.
440. NICE, M. M.: The theory of territorialism and its development. In *Fifty Years' Progress of American Ornithology*, 1883-1933, Amer. Ornithol. Union, New York, 1933, pp. 249.
441. NIMKOFF, M. F.: The child's preference for father or mother, *Amer. Sociol. Rev.*, 1942, **7**, 517-524.
442. NISSEN, H. W.: A field study of the chimpanzee, *Comp. Psychol. Monogr.*, 1931, **8**, No. 1, pp. 122.
443. ——: A study of maternal behavior in the white rat by means of the obstruction method, *J. Genet. Psychol.*, 1930, **37**, 377-393.
444. ——: The effects of gonadectomy, vasotomy, and injections of placental and orchic extracts on the sex behavior of the white rat, *Genet. Psychol. Monogr.*, 1929, **5**, No. 6, 451-547.
445. NOBACK, C. R.: Changes in vaginal smears and associated cyclic phenomena in the lowland gorilla, *Anat. Rec.*, 1939, **73**, 209-225.
446. NOBLE, G. K.: Sexual selection among fishes, *Biol. Rev.*, 1938, **13**, 133-158.
447. ——: The role of dominance in the social life of birds, *Auk*, 1939, **56**, 263-273.
448. ——, and BORNE, R.: The social hierarchy in Xiphophorus and other fishes, *Bull. Ecol. Soc. Amer.*, 1938, **19**, No. 2, 14. Abstract.
449. ——, and BRADLEY, H. T.: The mating behavior of lizards: Its bearing on the theory of sexual selection, *Ann. N. Y. Acad. Sci.*, 1933, **35**, 25-100.
450. ——, and CURTIS, B.: The social behavior of the jewel fish, *Hemichromis bimaculatus* Gill, *Bull. Amer. Mus. Nat. Hist.*, 1939, **76**, 1-46.
451. ——, and GREENBERG, B.: Induction of female behavior in male *Anolis carolinensis* with testosterone propionate, *Proc. Soc. Exp. Biol. N. Y.*, 1941, **47**, 32-37.
452. ——, KUMPF, K. T., and BILLINGS, V. N.: The induction of brooding behavior in the jewel fish, *Anat. Rec.*, 1936, **67**, 50-51. Abstract.
453. —— and ——: The induction of brooding behavior in the jewel fish, *Endocrinology*, 1938, **23**, 353-359.

454. ——, and VOGT, W.: An experimental study of sex recognition in birds, *Auk*, 1935, **52**, 278-285.
455. ——, and WURM, M.: Effect of testosterone propionate on the black-crowned night heron, *Anat. Rec.*, 1938, **72**, (Suppl.) 60. Abstract.
456. —— and ——: Further analysis of the social behavior of the black-crowned night heron, *Auk*, 1942, **59**, 205-224.
457. —— and ——: The effect of hormones on the breeding of the laughing gull, *Anat. Rec.*, 1943, **78**, (Suppl.), pp. 25.
458. —— and ——: The effect of testosterone propionate on the black-crowned night heron, *Endocrinology*, 1940, **26**, 837-850.
459. —— and ——: The social behavior of the laughing gull, *Ann. N. Y. Acad. Sci.*, 1943, **45**, 179-220.
460. ——, WURM, M., and SCHMIDT, A.: Social behavior of the black-crowned night heron, *Auk*, 1938, **55**, 7-40.
461. ——, and ZITRIN, A.: Induction of mating behavior in male and female chicks following injection of sex hormones, *Endocrinology*, 1942, **30**, 327-334.
462. NORBURY, E. P.: The climacteric period from the viewpoint of mental disorders, *Med. Rec.*, N. Y., 1934, **140**, 605-609, 657-662.
463. NOWLIS, V.: Sexual status and degree of hunger in chimpanzee competitive interaction, *J. Comp. Psychol.*, 1942, **34**, 185-194.
464. OLTMAN, J. E., and FRIEDMAN, S.: Acute heterosexual inadequacy. I. In the male, *Psychiat. Quart.*, 1938, **12**, 669-678.
465. —— and ——: Acute heterosexual inadequacy. II. In the female, *Psychiat. Quart.*, 1940, **14**, 194-204.
466. OWENSBY, N. M.: The correction of homosexuality, *Urol. Cutan. Rev.*, 1941, **45**, 494-496.
467. OWINGS, C.: A social hygiene research program, *Studies in Parental Sex Educ. Paper 1*, Univ. of Minn. Press, 1931, I, pp. 14.
468. PALMER, H. D.: Involutional psychoses: melancholia, *Pub. Health. Rept., U. S. Pub. Health Serv.*, Washington, 1942 Suppl. No. 168, 118-124.
469. ——, and SHERMAN, S. H.: The involutional melancholia process, *Arch. Neurol. Psychiat., Chicago*, 1938, **40**, 762-788.
470. PALMER, R. S.: A behavior study of the common tern, *Proc. Boston Soc. Nat. Hist.*, 1941, **42**, 1-119.
471. PANUNZIO, C.: War and divorce, *Sociol. Soc. Res.*, 1943, **28**, 15-19.
472. PAPANICOLAOU, G. N.: The sexual cycle in the human female as revealed by vaginal smears, *Amer. J. Anat.*, 1933, **52**, No. 3 (Suppl.) 519-637.
473. ——, and SEWARD, J. P., JR.: Artificial oestrus in the guinea pig without ovaries and uterus, *Psychol. Bull.* 1939, **36**, 220-221. Abstract.
474. ——, and SHORR, E.: The action of ovarian follicular hormone in the menopause, as indicated by vaginal smears, *Amer. J. Obstet. Gynec.*, 1936, **31**, 806-831.
475. PARKES, A. S.: Reproduction and its endocrine control. In LUCK J. M., and HALL V. E. (Eds.): *Annu. Rev. Physiol.*, 1944, **6**, 483-516.

476. PARSONS, E. C.: The *Zuñi La'mana*, *Amer. Anthropol.*, 1916, **18**, 521-528.
477. PARSONS, T.: Age and sex in the social structure of the United States, *Amer. Sociol. Rev.*, 1942, **7**, 604-616.
478. PARTEN, M. B.: Social play among preschool children, *J. Abnorm. Soc. Psychol.*, 1933, **28**, 136-147.
479. PATRICK, C.: Attitudes about women executives in government positions, *J. Soc. Psychol.*, 1944, **19**, 3-34.
480. PEARL, R.: *The Biology of Population Growth*, New York: Knopf, 1930, pp. XIV + 260.
481. PEARSON, G. H. J.: The psychosexual development of the child, *Ment. Hyg. N. Y.*, 1931, **15**, 685-713.
482. PEDERSEN-BJERGAARD, K., and MADSEN, G. B.: The effect of oestrogenic and androgenic hormone on the spontaneous muscular activity of gonadectomized male and female rats, *Acta Pathol. et Microbiol. Scand.*, Suppl. 37, 1938, **15**, 431-437.
483. PLATO: *Republic*, (Translated by Davies J. L. and Vaughan D. J.), London: Macmillan, 1921, XXXII + 370.
484. POPENOE, P.: Marital counseling, with special reference to frigidity, *Marriage Hyg.*, 1937, **4**, 36-46.
485. ——, and Wicks, D.: Marital happiness in two generations, *Ment. Hyg. N. Y.*, 1937, **21**, 218, 223.
486. PRATT, J. P.: Sex functions in man. In ALLEN, E., DANFORTH, C. H., and DOISY, E. A.: *Sex and Internal Secretions*, Baltimore: Williams & Wilkins (2d ed.) 1939, 1263-1334.
487. PUCKETT, H. W.: *Germany's Women Go Forward*, New York: Columbia Univ. Press, 1930, pp. IX + 329.
488. PULLIAS, E. V.: Masturbation as a mental hygiene problem—A study of the beliefs of 75 young men, *J. Abnorm. Soc. Psychol.*, 1937, **32**, 216-222.
489. PUTNAM, E. J.: *The Lady*, New York: Sturgis and Walton, 1940, pp. XXI + 323.
490. RAMSEY, G. V.: The sexual development of boys, *Amer. J. Psychol.*, 1943, **56**, 217-234.
491. ——: The sex information of younger boys, *Amer. J. Orthopsychiat.*, 1943, **13**, 347-353.
492. REED, J. M.: Observations on the suckling period in the guinea pig, *Univ. Calif. Publ. Zool.*, 1912, **9**, 341-351.
493. REIDER, N.: Menarche after one psychotherapeutic interview: A case report, *Bull. McNamee Clin.*, 1943, **7**, 45-46.
494. RENNIE, T. A. C., VEST, S. A., and HOWARD, J. E.: The use of testosterone propionate in impotence: Clinical studies with male sex hormones (III), *Sth. Med. J.*, 1939, **32**, 1004-1007.
495. REY, A.: L'instinct maternel de la souris et le transport des sourceaux, *Arch. de Psychol.*, 1931, **23**, 157-166.
496. RICHARDSON, H. M.: Studies of mental resemblance between husbands and wives and between friends, *Psychol. Bull.*, 1939, **36**, 104-120.

497. RICHTER, C. P.: Hypophyseal control of behavior. In *Symposia on Quantitative Biol.*, Cold Spring Harbor, 1937, **5**, 258-268.
498. ———: The effect of early gonadectomy on the gross body activity of rats, *Endocrinology*, 1933, **17**, 445-450.
499. ———, and HARTMAN, C. G.: The effect of injection of amniotic on the spontaneous activity of gonadectomized rats, *Amer. J. Physiol.*, 1934, **108**, 136-143.
500. RIDDLE, O.: Birds without gonads: Their origin, behaviour, and bearing on the theory of the internal secretion of the testes, *Brit. J. Exp. Biol.*, 1935, **2**, 211-246.
501. ———: Endocrine aspects of the physiology of reproduction. In LUCK, J. M., and HALL, V. E. (Eds.): *Annu. Rev. Physiol.*, 1941, **3**, 573-616.
502. ———, and BATES, R. W.: The preparation, assay, and actions of lactogenic hormone. In ALLEN, E., DANFORTH, C. H., and DOISY, E. A.: *Sex and Internal Secretions*, Baltimore: Williams & Wilkins 2d. ed., 1939, 1088-1117.
503. ———, ———, and LAHR, E. L.: Prolactin induces broodiness in fowl, *Amer. J. Physiol.*, 1935, **111**, 352-360.
504. ———, LAHR, E. L., and BATES, R. W.: Maternal behavior induced in virgin rats by prolactin, *Proc. Soc. Exp. Biol. N. Y.*, 1935, **32**, 730-734.
505. RIEMER, S.: War marriages are different, *Marriage & Family Living*, 1943, **5**, 84-85.
506. RIESS, M.: The role of the sex hormones in psychiatry, *J. Ment. Sci.*, 1940, **86**, 767-789.
507. RIPLEY, H. S., SHORR, E., and PAPANICOLAOU, G. N.: The effect of treatment of depression in the menopause with estrogenic hormone, *Amer. J. Psychiat.*, 1940, **96**, 905-914.
508. ROBBINS, L. L.: Suggestions for the psychological study of sterility in women, *Bull. Menninger Clin.*, 1943, **1**, 41-44.
509. ROBERTS, B.: The breeding behaviour of penguins, *Brit. Mus., Sci. Reports*, Brit. Graham Land Expedition, 1934-1937, 196-254. 4 plates.
510. ROBINSON, W. J.: *Soviet Russia as I Saw It*, New York: International Press, 1932, pp. 224.
511. ———: *Treatment of Sexual Impotence*, New York: Eugenics Pub. Co., 1933, pp. XXV + 542.
512. ROBSON, J. M.: *Recent Advances in Sex and Reproductive Physiology*, 2d ed., Philadelphia: Blakiston, 1940, pp. XIII + 329.
513. ROSANOFF, A. J.: Human sexuality, normal and abnormal, from a psychiatric standpoint, *Urol. Cutan. Rev.*, 1929, **33**, 523-530.
514. ROSENZWEIG, S.: Psychology of the menstrual cycle, *J. Clin. Endocrin.*, 1943, **3**, 296-300.
515. ———, and HOSKINS, R. G.: A note on the ineffectualness of sex-hormone medication in a case of pronounced homosexuality, *Psychosom. Med.*, 1941, **3**, 87-89.

516. ROSS, A.: The involutorial phase of the menstrual cycle (climacteric), *Amer. J. Obstet. Gynec.*, 1943, **45**, 497-505.
517. ROUGEMONT, D. DE: *Love in the Western World* (Trans. by Belgion, M. M.), New York: Harcourt, 1940, pp. XII + 308.
518. RUBENSTEIN, B. B.: The relation of cycle changes in human vaginal smears to body temperature and basal metabolic rates, *Amer. J. Physiol.*, 1937, **119**, 635-641.
519. ———: The vaginal smear—basal body temperature technic and its application to the study of functional sterility in women, *Endocrinology*, 1940, **27**, 843-856.
520. RUDOLF, G. DE M.: The experimental effect of sex-hormone therapy upon anxiety in homosexual types, *Brit. J. Med. Psychol.*, 1941, **18**, 317-322.
521. SALMON, N. J., and FRANK, R. T.: Hormonal factors affecting vaginal smears in castrates and after the menopause, *Proc. Soc. Exp. Biol. N. Y.*, 1936, **33**, 612-614.
522. ———, and GEIST, S. H.: Effect of androgens upon libido in women, *J. Clin. Endocrin.*, 1943, **3**, 235-238.
523. SAPIR, E.: Observations on the sex problem in America, *Amer. J. Psychiat.*, 1928, **8**, 519-534.
524. SAUNDERS, E. B.: Mental reactions associated with the menopause. *Sth. Med. J.*, 1932, **25**, 266-270.
525. SCHAPIRO, B.: Modern concepts of the problem of impotence, *Med. Rec.*, 1942, **155**, 280-282.
526. SCHJELDERUP-EBBE, T.: Social behavior of birds. In MURCHISON, C.(Ed.): *A Handbook of Social Psychology*, Clark Univ. Press, Worcester, 1935, 947-972.
527. SCHROEDER, P. L.: Behavior problems of adolescents, *Amer. J. Dis. Child.* 1939, **58**, 168-174.
528. SCHUBERT, H. J. P., and WAGNER, M. E.: The relation of individual personal data responses and transiency, place among siblings, and academic ability, *J. Abnorm. Soc. Psychol.*, 1936, **30**, 474-483.
529. SCHULTZ, A. H., and SNYDER, F. F.: Observations on reproduction in the chimpanzee, *Johns Hopkins Hosp. Bull.*, 1935, **5**, 193-205.
530. SCHWEINITZ, K. DE: The dangers and advantages of sex instruction for children, *Ment. Hyg. N. Y.*, 1931, **15**, 561-569.
531. SEDER, M.: The vocational interests of professional women, I, *J. Appl. Psychol.*, 1940, **24**, 130-143.
532. ———: The vocational interests of professional women, II, *J. Appl. Psychol.*, 1940, **24**, 265-272.
533. SEVRINGHAUS, E. L.: The use of folliculin in involutorial states, *Amer. J. Obstet. Gynec.*, 1933, **25**, 361-368.
534. SEWARD, G. H.: Cultural conflict and the feminine role, *J. Soc. Psychol.*, 1945, **22**, 177-194.
535. ———: Psychological effects of the menstrual cycle on women workers, *Psychol. Bull.*, 1944, **41**, 90-102.

536. ———: Sex roles in postwar planning, *J. Soc. Psychol.*, 1944, **19**, 163-185.
537. ———: Studies on the reproductive activities of the guinea pig. II. The role of hunger in filial behavior, *J. Comp. Psychol.*, 1940, **29**, 25-41.
538. ———: Studies on the reproductive activities of the guinea pig. V. Specificity of sexual drive in the male, *J. Genet. Psychol.*, 1941, **59**, 389-396.
539. ———: The female sex rhythm, *Psychol. Bull.*, 1934, **31**, 153-192.
540. ———: The "validation" of drives, *Psychol. Rev.*, 1942, **49**, 88-95.
541. ———, and SEWARD, J. P., Jr.: Changes in systolic blood pressure, heart rate, and temperature before, during, and after pregnancy in a healthy woman, *Hum. Biol.*, 1936, **8**, 232-242.
542. SEWARD, J. P., Jr.: Studies on the reproductive activities of the guinea pig: III. The effect of androgenic hormone on sex drive in males and females, *J. Comp. Psychol.*, 1940, **30**, 435-449.
543. ———: The hormonal induction of behavior, *Psychol. Rev.*, 1941, **48**, 302-315.
544. ———, and SEWARD, G. H.: Psychological effects of estrogenic hormone therapy in the menopause, *J. Comp. Psychol.*, 1937, **24**, 377-392.
545. ——— and ———: Studies on the reproductive activities of the guinea pig: I. Factors in maternal behavior, *J. Comp. Psychol.*, 1940, **29**, 1-24.
546. ——— and ———: Studies on the reproductive activities of the guinea pig: IV. A comparison of sex drive in males and females, *J. Genet. Psychol.*, 1940, **57**, 429-440.
547. ——— and ———: The effect of repetition on reactions to electric shock, with special reference to the menstrual cycle, *Arch. Psychol.*, 1934, No. 168, pp. 103.
548. SHAPIRO, H. A.: Effect of testosterone propionate on mating, *Nature, Lond.*, 1937, **139**, 588-589.
549. SHASKAN, D.: One hundred sex offenders, *Amer. J. Orthopsychiat.*, 1939, **9**, 565-569.
550. SHEVIAKOV, G.: War and adolescents, *J. Psychol.*, 1942, **14**, 161-179.
551. SHIRACH, B. v.: *Die Hitler-Jugend*, Leipzig: Kochler and Amelang, 1934, p. 227.
552. SHOCK, N.: Physiological changes in adolescence, 43d Yearb. Nat. Soc. Stud. Educ., Part 1, Chicago, 1944, 56-79.
553. SHOEMAKER, H. H.: Effect of testosterone propionate on behavior of the female canary, *Proc. Soc. Exp. Biol. N. Y.*, 1939, **41**, 299-302.
554. ———: The social hierarchy in flocks of the canary (*Serinus canarius*), *Auk*, 1939, **56**, 381-406.
555. SHORR, E.: Problems of mental adjustment at the climacteric, *Pub. Health Rept., U. S. Pub. Health Serv.*, Washington, 1942, Suppl. No. 168, 125-137.
556. SIMMONS, R.: The relative effectiveness of certain incentives in animal learning, *Comp. Psychol. Monogr.*, 1924, **2**, No. 7, pp. 79.
557. SIMPSON, M.: Parent preferences of young children, *Columbia University Contr. Educ. Teach. Coll. Series*, 1935, No. 652, pp. VIII + 83.

558. SKAGGS, E. E.: Sex differences in feeling and emotional disposition in a university population, *J. Soc. Psychol.*, 1942, **16**, 21-27.
559. ———: Sex differences in moral attitudes, *J. Soc. Psychol.*, 1940, **11**, 3-10.
560. SKARD, A. G.: Studies in the psychology of needs: observations and experiments on the sexual need in hens, *Acta Psychol.*, Hague, 1936, **2**, 175-232.
561. SLAVENS, G. S., and BROGAN, A. P.: Moral judgments of high-school students, *Int. J. Eth.*, 1927, **38**, 57-69.
562. SLOANE, P., and KARPINSKI, E.: Effects of incest on the participants, *Amer. J. Orthopsychiat.*, 1942, **12**, 666-674.
563. SLONAKER, J. R.: Analysis of daily activity of the albino rat, *Amer. J. Physiol.*, 1925, **73**, 485-503.
564. ———: Sex-drive in rats, *Amer. J. Physiol.*, 1935, **112**, 176-181.
565. ———: The effects of copulation, pregnancy, pseudo-pregnancy, and lactation on the voluntary activity and food consumption of the albino rat, *Amer. J. Physiol.*, 1925, **71**, 362-394.
566. ———: The effect of pubescence, oestration, and menopause on the voluntary activity in the albino rat, *Amer. J. Physiol.*, 1924, **68**, 294-315.
567. SMITH, S.: Age and sex differences in children's opinions concerning sex differences, *J. Genet. Psychol.*, 1939, **54**, 17-25.
568. SOLBY, B.: The psychodramatic approach to marriage problems, *Amer. Sociol. Rev.*, 1941, **6**, 523-530.
569. SÖLLENBERGER, R. T.: Some relationships between the urinary excretion of male hormone by maturing boys and their expressed interests and attitudes, *J. Psychol.*, 1940, **9**, 179-189.
570. ———, and HAMILTON, J. B.: The effect of testosterone propionate upon the sexual behavior of castrated male guinea pigs, *J. Comp. Psychol.*, 1939, **28**, 81-92.
571. SPENCE, A. W.: Testosterone propionate in functional impotence, *Brit. Med. J.*, 1940, Pt. II, 411-413.
572. SPENCE, K. W.: Réaction des mères chimpanzés à l'égard des enfants chimpanzés après séparation, *J. Psychol. norm. path.*, 1937, **34**, 475-493.
573. STAGNER, R., and DROUGHT, N.: Measuring children's attitudes toward their parents, *J. Educ. Psychol.*, 1935, **26**, 169-176.
574. STALNAKER, J. M.: Sex differences in the ability to write, *Sch. & Soc.*, 1941, **54**, 532-535.
575. STEINBACHER, G.: Geburt und Kindheit eines Schimpanansen, *Z. Tierpsychol.*, 1941, **4**, 188-203.
576. STEPANCOVSKY, B.: E studio sobre el ciclo genital en un grupo de 700 mujeres, *Prncpsa méd. argent.*, 1941, **28**, 505-511.
577. STERN, B. J.: The family and cultural change, *Amer. Sociol. Rev.*, 1939, **4**, 199-208.
578. ———: *The Family Past and Present*, New York: Appleton-Century, 1938, pp. XIV + 461.
579. ———: Women, position of, in historical societies, *Ency. Soc. Sci.*, **15**, 442-450.

580. STEVENSON, G. H., and MONTGOMERY, S. R.: Paranoid reaction occurring in women of middle age, *Amer. J. Psychiat.*, 1932, **11**, 911-923.
581. STEVENSON, M. C.: The Zuñi Indians, 23d *Annu. Rep. Bur. Amer. Ethnol., Wash.* (1901-1902), Washington, 1904, **37**, 3-634.
582. STOCKARD, C. R., and PAPANICOLAOU, G. N.: The existence of a typical oestrous cycle in the guinea pig, with a study of its histological and physiological changes, *Amer. J. Anat.*, 1917, **22**, 225-283.
583. STOKE, S. M., and WEST, E. D.: Sex differences in conversational interests, *J. Soc. Psychol.*, 1931, **2**, 120-126.
584. STOLZ, H. R., and STOLZ, L. M.: Adolescent problems related to somatic variations, *Yearb. Nat. Soc. Stud. Educ.*, Chicago, 1944, **43**, 80-99.
585. STONE, C. P.: Activation of impotent male rats by injections of testosterone propionate, *J. Comp. Psychol.*, 1938, **25**, 445-450.
586. ———: Copulatory activity in adult male rats following castration and injections of testosterone propionate, *Endocrinology*, 1939, **24**, 165-174.
587. ———: Effects of cortical destruction on reproductive behavior and maze learning in albino rats, *J. Comp. Psychol.*, 1938, **26**, 217-236.
588. ———: Precocious copulatory activity induced in male rats by subcutaneous injections of testosterone propionate, *Endocrinology*, 1940, **26**, 511-515.
589. ———: Sex drive. In ALLEN, E., DANFORTH, C. H., and DOISY, E. A.: *Sex and Internal Secretions*, Baltimore: Williams & Wilkins, 2d ed., 1939, 1213-1262.
590. ———: The awakening of copulatory ability in the male albino rat, *Amer. J. Physiol.*, 1924, **68**, 407-424.
591. ———: The congenital sexual behavior of the young male albino rat, *J. Comp. Psychol.*, 1922, **2**, 95-153.
592. ———: The initial copulatory response of female rats reared in isolation from the age of 20 days to the age of puberty, *J. Comp. Psychol.*, 1926, **6**, 73-83.
593. ———: The retention of copulatory activity in male rabbits following castration, *J. Genet. Psychol.*, 1932, **40**, 296-305.
594. ———: The retention of copulatory ability in male rats following castration, *J. Comp. Psychol.*, 1927, **7**, 369-387.
595. ——— and BARKER, R. G.: Aspects of personality and intelligence in post-menarcheal and premenarcheal girls of the same chronological ages, *J. Comp. Psychol.*, 1937, **23**, 439-455.
596. ——— and ———: Spontaneous activity, direct and indirect measures of sexual drive in adult male rats, *Proc. Soc. Exper. Biol., N. Y.*, 1934, **32**, 195-199.
597. ———, BARKER, R. G., and TOMILIN, M. I.: Sexual drive in potent and impotent male rats as measured by the Columbia Obstruction Apparatus, *J. Genet. Psychol.*, 1935, **47**, 33-48.
598. ——— and FERGUSON, L.: Preferential responses of male albino rats to food and to receptive females, *J. Comp. Psychol.*, 1938, **26**, 237-253.

599. ——, ——, and WRIGHT, C. A.: Consistency in lengths of post-ejaculatory quiescent periods in adult male rats, *Proc. Soc. Exp. Biol., N. Y.*, 1940, **45**, 120-121.
600. ——, TOMILIN, M. I., and BARKER, R. G.: A comparative study of sexual drive in adult male rats as measured by direct copulatory tests and by the Columbia Obstruction Apparatus, *J. Comp. Psychol.*, 1935, **19**, 215-241.
601. STOPES, M. C.: *Married Love*, New York, Putnam, pp. XXII + 177.
602. STRAKOSCH, F. M.: *Factors in the Sex Life of 700 Psychopathic Women*, Utica, N. Y.: State Hospitals Press, 1934, pp. IX + 102.
603. STURMAN-HULBE, M., and STONE, C. P.: Maternal behavior in the albino rat, *J. Comp. Psychol.*, 1929, **9**, 203-237.
604. SUARES, N.: Personality development in adolescence, *Rorschach Res. Exch.*, 1938, **3**, 2-12.
605. SYMONDS, P. M.: Changes in sex differences in problems and interests of adolescents with increasing age, *J. Genet. Psychol.*, 1937, **50**, 83-89.
606. TAMM, A.: Om barnets sexualitet, *Svenska Läkartidn.*, 1936, **33²**, 1831-1843.
607. TAUBER, E. S.: Effects of castration upon the sexuality of the adult male, *Psychosom. Med.*, 1940, **2**, 74-87.
608. TAYLOR, W. S.: A critique of sublimation in males: A study of forty superior single men, *Genet. Psychol. Monogr.*, 1933, **13**, No. 1, 1-115.
609. TERMAN, L. M.: *Psychological Factors in Marital Happiness*, New York: McGraw-Hill, 1938, pp. XIV + 474.
610. —— and JOHNSON, W. B.: Methodology and results of recent studies in marital adjustment, *Amer. Sociol. Rev.*, 1939, **4**, 307-324.
611. —— and MILES, C. C.: *Sex and Personality: Studies in Masculinity and Femininity*, New York: McGraw-Hill, 1936, pp. XI + 600.
612. THOMPSON, L. J.: Attitudes of primiparae as observed in a prenatal clinic, *Ment. Hyg., N. Y.*, 1942, **26**, 243-256.
613. THOMSON, D. L., and COLLIP, J. B.: Endocrine glands. In LUCK, J. M., and HALL, V. E. (Eds.): *Annu. Rev. Physiol.*, 1940, **2**, 309-346.
614. TILNEY, F., and KUBIE, L. S.: Behavior in its relation to the development of the brain. I. General problems of behavior. *New York Neurol. Inst. Bull.*, 1931, **1**, 229-313.
615. TINBERGEN, N.: On the analysis of social organization among vertebrates, with special reference to birds, *Amer. Midl. Nat.*, 1939, **21**, 210-234.
616. ——: The function of sexual fighting in birds and the problem of the origin of "territory," *Bird-banding*, 1936, **7**, 1-8.
617. TINKLEPAUGH, O. L.: Le comportement sexuel chez les chimpanzés et les singes inférieurs, considéré comme un réaction de substitution consécutive à des troubles émotionnels, *J. de Psychol.*, 1933, **30**, 930-954.
618. ——: Parturition and puerperal sepsis in a chimpanzee, *Anat. Rec.*, 1932, **53**, 193-205.
619. ——: Sex cycles and other cyclic phenomena in a chimpanzee during adolescence, maturity and pregnancy, *J. Morph.*, 1933, **54**, 521-547.

620. ———: The nature of periods of sex desire in woman and their relation to ovulation, *Amer. J. Obstet. Gynec.*, 1933, **26**, 335-345.
621. ——— and HARTMAN, C. G.: Behavior and maternal care of the newborn monkey (*Macaca mulatta*—"M. rhesus"), *J. Genet. Psychol.*, 1932, **40**, 257-286.
622. ——— and MITCHELL, M. B.: Monthly and weekly weight cycles in women and their relations to behavioral and physiological functions, *J. Genet. Psychol.*, 1939, **54**, 3-16.
623. TRYON, C.: Evaluations of adolescent personality by adolescents, *Monogr. Soc. Res. Child Developm.*, 1939, **4**, No. 4, pp. 83.
624. ———: Sex differences in children's opinions of each other, *Psychol. Bull.*, 1935, **32**, 546-547. Abstract.
625. ———: The adolescent peer culture, *Yearb. Nat. Soc. Stud. Educ.*, 1944, **43**, 217-239.
626. TSAI, L. S.: The relative strength of sex and hunger motives in the albino rat, *J. Comp. Psychol.*, 1925, **6**, 407-415.
627. TURNER, C. W.: The mammary glands. In ALLEN, E., DANFORTH, C. H., and DOISY, E. A.: *Sex and Internal Secretions*, Baltimore: Williams & Wilkins, 2d ed., 1939, 740-803.
628. TURNER, H. H.: Clinical use of synthetic male sex hormone (testosterone propionate), *Endocrinology*, 1939, **24**, 763-773.
629. UHRICH, J.: The social hierarchy in albino mice, *J. Comp. Psychol.*, 1938, **25**, 373-413.
630. UOTILA, UNTO U.: Hypothalamic control of anterior pituitary function. In *The Hypothalamus*, *Res. Publ. Ass. Nerv. Ment. Dis.*, 1940, **20**, 580-588.
631. VAN KLEEK, M.: Women in industry, *Ency. Soc. Sci.*, 1935, **15**, 451-459.
632. VARIOUS: Report of the Commission on post-war training and adjustment; A statement of the principles relating to the educational problems of returning soldiers, sailors and displaced war industry workers, *New York Inst. Adult Educ., Teach. Coll.*, Columbia University, 1942, pp. VII + 54.
633. VEST, S. A., JR., and HOWARD, J. E.: Clinical experiments with the use of male sex hormones. I. Use of testosterone propionate in hypogonadism, *J. Urol.*, 1938, **40**, 154-183.
634. VIERECK, P. R. E.: *Metapolitics, from the Romantics to Hitler*, New York: Knopf, 1941, pp. XXIII + 335.
635. VILLARD, O. G.: *The German Phoenix*, New York: H. Smith, 1933, pp. 358.
636. VOLLMANN, U.: Untersuchungen über die Körpertemperatur der Frau in Korrelation zu den Phasen ihres Genitalzyklus, *Monatschr. Geburtsh. Gynäk.* 1940, **111**, 121-153.
637. WAGGONER, R. W., and BOYD, D. A., JR.: Juvenile aberrant sexual behavior, *Amer. J. Orthopsychiat.*, 1941, **11**, 275-291.
638. WALL, J. A.: Significant factors in the readjustment of women patients with masculine tendencies, *Psychiat. Quart.*, 1940, **14**, 504-512.

639. WALLER, W.: *War and the Family*, New York: Dryden, 1940, pp. 51.
640. WANG, G. H.: The relation between "spontaneous" activity and oestrous cycle in the white rat, *Comp. Psychol. Monogr.*, 1923, **2**, No. 6, pp. 27.
641. ——, RICHTER, C. P., and GUTTMACHER, A. F.: Activity studies on male castrated rats with ovarian transplants, and correlation of the activity with the histology of the grafts, *Amer. J. Physiol.*, 1925, **73**, 581-599.
642. WARDEN, C. J.: The relative strength of the primary drives in the white rat, *J. Genet. Psychol.*, 1932, **41**, 16-35.
643. WARNER, L. H.: A study of sex behavior in the white rat by means of the obstruction method, *Comp. Psychol. Monogr.*, 1927, **4**, pp. 68.
644. WATSON, G., and GREEN, G.: Scientific studies and personal opinion on sex questions, *J. Abnorm. Soc. Psychol.*, 1932, **27**, No. 22, 130-146.
645. WATSON, J. B.: *Psychology from the Standpoint of a Behaviorist*, Philadelphia: Lippincott, 1924, pp. XVII + 448.
646. ——: *The Ways of Behaviorism*, New York: Harper, 1928, pp. 144.
647. WEBB, S., and WEBB, B.: *Soviet Communism: A New Civilization?* 2 vols., New York: Scribner, 1936, pp. 1174.
648. WEIGERT, E. V.: Women in wartime. Disabilities and "masculine" defense reactions, *Psychiatry*, 1943, **6**, 375-379.
649. WELLMAN, B.: Sex differences. In MURCHISON, C. (Ed): *A Handbook of Child Psychology*, Worcester: Clark Univ. Press, 1933, pp. XII + 956.
650. WERNER, A. A.: Symptoms accompanying ovarian hypofunction, *J. Missouri Med. Ass.*, 1931, **28**, 363-371.
651. —— and COLLIER, W. D.: The effect of theelin injections on the castrated woman, *J. Amer. Med. Ass.*, 1933, **100**, 633-640.
652. ——, JOHNS, G. A., HOCTOR, E. F., AULT, C. C., KOHLER, L. H., and WEIS, M. W.: Involutional melancholia, *J. Amer. Med. Ass.*, 1934, **103**, 13-16.
653. WESTMAN, A.: Studien über den Sexualzyklus bei *Makakus-Rhesus*-Affen, nebst einigen Bemerkungen über den menstruellen Blutungsmechanismus, *Acta Obstet. Gynec. Scand.*, 1932, **12**, 282-328.
654. WHYTE, W. F.: A slum sex code, *Amer. J. Sociol.*, 1943, **49**, 24-31.
655. WIESNER, B. P., and SHEARD, N. M.: Maternal behaviour in the rat, London: Oliver and Boyd, 1933, pp. XI + 245.
656. WILLIAMS, E. G.: Homosexuality: A biological anomaly, *J. Nerv. Ment. Dis.*, 1944, **99**, 65-70.
657. WILLIAMS, F. E.: *Russia, Youth, and the Present-day World*, New York: Farrar, 1934, pp. XXII + 270.
658. WILLOUGHBY, R. R.: A sampling of student opinion, *J. Soc. Psychol.*, 1930, **1**, 164-169.
659. ——: Sexuality in the second decade, *Monogr. Soc. Res. Child Developm.*, 1937, **2**, No. 3, pp. IV + 57.
660. ——: The relationship to emotionality of age, sex and conjugal condition, *Amer. J. Sociol.*, 1938, **43**, 920-931.

661. WINCH, R. F.: Personality characteristics of engaged and married couples, *Amer. J. Sociol.*, 1941, **46**, 686-697.
662. ———: The relation between courtship behavior and attitudes towards parents among college men, *Amer. Social. Rev.*, 1943, **8**, 164-174.
663. WINTER, E.: *Red Virtue*, New York: Harcourt, 1933, pp. XII + 332.
664. WITSCHI, E., and MENGERT, W. F.: Endocrine studies on human hermaphrodites and their bearing on the interpretation of homosexuality, *J. Clin. Endocrin.*, 1942, **2**, 279-286.
665. WITTKOWER, E., and WILSON, A. T. M.: Dysmenorrhea and sterility: personality studies, *Brit. Med. J.*, 1940, **2**, 586-590.
666. WOLBARST, A. L.: Testosterone propionate in male impotence and the excretion of androgens in the urine, *Med. Rec., N. Y.*, 1941, **154**, 341-344.
667. WOLFSON, T.: Aprons and overalls in the war, *Ann. Amer. Acad. Polit. Soc. Sci.*, 1943, **229**, 46-55.
668. WOOLLEY, H. T.: Personality studies of 3-year-olds, *J. Exp. Psychol.*, 1922, **5**, 381-391.
669. WORTIS, J.: A note on the body build of the male homosexual, *Amer. J. Psychiat.*, 1937, **93**, 1121-1125.
670. ———: Sex taboos, sex offenders and the law, *Amer. J. Orthopsychiat.*, 1939, **9**, 554-565.
671. WOSKRESSENSKY, and IWANOW, N. S.: Beobachtungen über die Sexualzyklen bei Affen, *Biologia Generalis* (Wien), 1932, **8**, 597-606.
672. WRIGHT, C. A.: Endocrine aspects of homosexuality, *Med. Rec. N. Y.*, 1935, **142**, 407.
673. ———: The sex offender's endocrines, *Med. Rec., N. Y.*, 1939, **149**, 399-402.
674. WUNDER, W.: Experimentelle Untersuchungen am dreistachligen Stichling (*Gasterosteus aculeatus L.*) während des Laichzeit (Kämpfe, Nestbau, Laichen, Brutpflege), *Z. Morph. Ökol. Tiere*, 1930, **16**, 453-498.
675. YAWGER, N. S.: Transvestism and other cross-sex manifestations, *J. Nerv. Ment. Dis.*, 1940, **92**, 41-48.
676. YERKES, R. M.: A chimpanzee family, *J. Genet. Psychol.* 1936, **48**, 362-370.
677. ———: *Chimpanzees*, New Haven: Yale Univ. Press, 1943, pp. XV + 321.
678. ———: Conjugal contrasts among chimpanzees, *J. Abnorm. Soc. Psychol.*, 1941, **36**, 175-199.
679. ———: Dominance and sex among chimpanzees, *Psychol. Bull.*, 1940, **37**, 432. Abstract.
680. ———: Sexual behavior in the chimpanzee, *Hum. Biol.*, 1939, **11**, 78-111.
681. ———: Social behavior of chimpanzees: dominance of mates, in relation to sexual status, *J. Comp. Psychol.*, 1940, **30**, 147-186.
682. ———: Social dominance and sexual status in the chimpanzee, *Quart. Rev. Biol.*, 1939, **14**, 115-136.
683. ———: The mind of a gorilla: Part II. Mental development. *Genet. Psychol. Monogr.*, 1927, **2**, No. 6, 375-532. 15 plates.

684. —— and ELDER, J. H.: Concerning reproduction in the chimpanzee, *Yale J. Biol. Med.*, 1937, **10**, 41-48.
685. —— and ——: Oestrus, receptivity, and mating in chimpanzee, *Comp. Psychol. Monogr.*, 1936, **13**, No. 65, pp. 39.
686. —— and ——: The sexual and reproductive cycles of chimpanzee, *Proc. Nat. Acad. Sci., Wash.*, 1936, **22**, 276-283.
687. —— and TOMILIN, M. I.: Mother-infant relations in chimpanzees, *J. Comp. Psychol.*, 1935, **20**, 321-359.
688. —— and YERKES, A. W.: Social behavior in infrahuman primates. In MURCHISON, C. (Ed.): *A Handbook of Social Psychology*, Worcester: Clark Univ. Press, 1935, 973-1033.
689. YOUNG, K.: *Social Psychology*, New York: Crofts, 1930, pp. XVII + 680.
690. YOUNG, P. T.: *Motivation of Behavior*, New York: Wiley, 1936, pp. XVIII + 562.
691. YOUNG, W. C.: The vaginal smear picture, sexual receptivity and the time of ovulation in the guinea pig, *Anat. Rec.*, 1937, **67**, 305-325.
692. ——, DEMPSEY, E. W., HAGQUIST, C. W., and BOLING, J. L.: Sexual behavior and sexual receptivity in the female guinea pig, *J. Comp. Psychol.*, 1939, **27**, 49-68.
693. ——, ——, and MYERS, H. I.: Cyclic reproductive behavior in the female guinea pig, *J. Comp. Psychol.*, 1934, **19**, 313-335.
694. —— and ORBISON, W. D.: Changes in selected features of behavior in pairs of oppositely sexed chimpanzees during the sexual cycle and after ovariectomy, *J. Comp. Psychol.*, 1944, **37**, 107-143.
695. —— and YERKES, R. M.: Factors influencing the reproductive cycle in the chimpanzee; the period of adolescent sterility and related problems, *Endocrinology*, 1943, **33**, 121-154.
696. ZACHRY, C.: *Emotion and Conduct in Adolescence*, New York: Appleton-Century, 1940, pp. XV + 563.
697. ——: Emotional problems of adolescence, *Bull. Menninger Clin.*, 1940, **4**, 63-73.
698. ZITRIN, A.: Induction of male copulatory behavior in a hen following administration of male hormone, *Endocrinology*, 1942, **31**, 690. Abstract.
699. ZUCKERMAN, S.: The comparative physiology of the menstrual cycle, *Brit. Med. J.*, 1932, **2**, 1093-1097.
700. ——: *The Social Life of Monkeys and Apes*, New York: Harcourt, 1932, pp. X + 356.
701. —— and PARKES, A. S.: The oestrous cycle of the Hamadryas baboon, *J. Physiol.*, 1930, **69**, XXXI. Abstract.

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